REGIONAL DISPARITIES IN EDUCATIONAL DEVELOPMENT

Editor

SHEEL C. NUNA

NIEPA

About the Book

India entered a new era of educational development with the commencement of planning. As the process of educational expansion gained momentum it revealed a strong bias in favour of enclaves of development and against the backward regions of the country. Although the planning process has tried to check these distortions, the alarming magnitude of disparities is a matter of concern.

Growth with equity is now considered to be one of the major objectives of planning in India. There is no contradiction between the demands for equity and growth. The social concern for the two can be handled together sustaining and sustained by each other.

It was in this context that equalisation of educational opportunities has been recognised as one of the major goals of Indian educational policy which calls for strenuous efforts to correct regional imbalances.

This book is an attempt to comprehend the problem of regional disparities in educational development in its totality. It is hoped that this will generate new ideas on the subject paving the way for strategies which will help in achieving the goals of 'growth with equity'.

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Foreword

The Indian polity today presents a complex picture in terms of diversity and disparity. Diversities have evolved over a period of time and constitute the rich heritage of the Indian nation with a kaleidoscopic variety. Unity and diversity of India should not be construed as opposite pulls; they are symbiotically linked, supporting and sustaining each other. Diversities are basically a positive element providing vitality to the country. Disparities are essentially a negative element leading to economic debility as well as social tensions giving rise to centrifugal tendencies.

The problem of regional disparities should be viewed in the context of inter-relationships between unity and diversity. It is this relationship which is of crucial significance in the task of national development. Diversities are not constraints to be eliminated; unity is not to be sacrificed in the name of 'freedom'. The perception of India as a monolith and perception of India as an agglomeration both are wrong. Unity and diversity together constitute the basis of nation building.

It was this delicate relationship which historically has shaped the destiny of this country. The regional disparities emerged in a big way in the wake of colonial policy of enclavization of development. The concern for a balanced regional development therefore, has been a significant aspect of planning in independent India particularly since the Third Five Year Plan. Unfortunately, the concern for regional disparities in educational development is only an incipient phenomenon.

The National Institute of Educational Planning and Administration is seriously engaged in exploring various dimensions of regional disparities in educational development. It is striving to develop appropriate planning strategies for educational development of the backward regions so that the principle of growth with justice can be achieved.

As a part of these efforts, the Institute organised a Seminar on "Regional Disparities in Educational Development in India". This book contains a variety of ideas emanating from the Seminar on the question of regional disparities in educational development. I hope it will be a useful contribution towards comprehending the problem in its totality.

BALDEV MAHAJAN

Acknowledgement

The book is the outcome of a culture imbibed by Moonis Raza, former Director of the National Institute of Educational Planning and Administration. Although the study of regional disparities received an impetus with the publication of *Levels of Regional Development* compiled under the supervision of Ashok Mitra, Registrar General and Census Commissioner of India at 1961 Census, it was Moonis Raza who nurtured the field with his dedication of a scholar and the fervour of a classicist. He cultivated the field by creating a Centre for the Study of Regional Development at the Jawaharlal Nehru University (JNU) and institutionalising the study of regional imbalances which was never done earlier on such a scale. This new culture of research that became the hallmark of distinction of JNU in general as of the Regional Development Centre in particular left an abiding imprint on the development of regional studies in the country at large. It was largely done to his commitment to the cause of humanity and more specifically to the cause of the deprived, the underprivileged and the downtrodden that these studies acquired a humane look. From a mere abstraction of quantifiable variables which were given an order according to a ranking system or given weightages on the basis of mathematical logic, Moonis Raza transformed the field into a fine art.

His association with the development of General Education Centre at the Aligarh Muslim University in the late fifties provided him an opportunity to develop an insight into the educational problems of the country. He applied his expertise in this field more systematically after assuming charge of NIEPA in the early eighties. His researches at NIEPA focussed on the problems of regional imbalances in educational development, more specifically the inequities between different sectors of Indian population. This work continues to be a model for the new generation of scholars committed to the cause of building an India free from inter-regional and inter-personal disparities in all spheres of life — social, economic and cultural. This book is an attempt to move a step further on the path laid by Moonis Raza and as such a token of facilitation for him.

I would like to take this opportunity to thank Professor Satya Bhushan, former Director of NIEPA who has been a constant source of inspiration. I am also grateful to Mr Baldev Mahajan, Joint Director, NIEPA for his encouragement.

I wish to put on record my sincere thanks to all the contributors who took pains in presenting their ideas on a theme which is still in its infancy. I am also grateful to my colleagues Ms. Basobi Sircar, Ms. Anjana Saluja and Mr Jamal Uddin Farooqui for their support in preparing the manuscript. Thanks are also due to Mr M.M. Ajwani and Mr Ajay Kumar Gupta for supervising the publication work. My acknowledgements are also due to faculty and non-faculty colleagues for their advice and support.

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However, I only remain responsible for any omission or error in the publication.

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Introductory Overview

India is passing through a critical phase of nation building. Strains generated within the polity coupled with disparities in the levels of development have emerged as the significant irritants in the process of national reconstruction. The major task today is to bring about a harmonious integration of the disparate elements within the polity.

The contemporary situation suggests that there is a built-in tendency in the political system to treat national integration and the centralisation of political authority as synonymous. This poses a serious threat to the basic concept of unity in diversity. There are evidences to suggest that tendency towards more and more concentration of power at the centre acts as a barrier in the process of nation building because a centralised or unitary system is not suited to India. Such a system fails to promote the interests of the diverse elements at the regional levels. Moreover, it generates pulls and strains within the polity which inevitably give rise to disintegrative tendencies at the regional level.

The structure of the Indian polity may best be evaluated in the context of its evolution "as India today is the outcome not only of the immediate past, but also of the thousands of years of the long story of the country. Layer upon layer of thoughts, experience and action have conditioned us and made us what we are today."[1] Her history reveals a remarkable existence of regional particularism as streams of races, languages, cultures and religious groups have contributed to the evolution of her unified civilisation. This had recognised India as a classic concept generally referred as "Unity in Diveristy". In the words of Gandhi "I believe that the civilisation India has evolved is not to be beaten in the world."[2]

The historically determined regional diversity finds an expression in the present day Indian polity. The annals of various dynasties which rose to power evidently testify that it was their attempt to eliminate regional autonomy which contributed to disintegration of their respective empires and proved the conception of a unified Hindustan to be a chimera.[3] No factor other than the magnitude of her diversity could have contributed to such a phenomenon.

The recognition of the importance of India's diversity in her regional structure does not imply that their manifestation through regional urges may be allowed to operate unchecked. History has enough testimony to suggest that whenever the regional forces were allowed to operate uniterrupted, the country moved towards disintegration. Similarly attempts to integrate regional entities under strong pressure have only resulted in generating centrifugal tendencies.

It is in this background that the regional disparities in the levels of development today have acquired a great significance in the context of the process of national reconstruction in which the country is engaged. In fact it is the persistence of regional imbalancs which have resulted in the demand for more and more autonomy. Experience has revealed that it is possible to contain regional pulls through better sharing of gains of economic development and well drawn political strategies. The Constitution of India incorporated the basic characteristics of federalism by deciding functions and powers between the state and the union government. All matters of legislation have been arranged under three separate lists in the Seventh Schedule of the Constitution — the Union List, the State List and the Concurrent List. However, the Constitution made some provisions which introduced a bias in favour of the Union Government and put the states in a relatively disadvantaged position.

The glaring regional disparities in development is a matter of concern. Despite four decades of planned development, there are areas suffering from chronic backwardness. Variations in distribution of natural resource endowments coupled with machinations of planning process create a situation where planning for regional development remains a far cry. It was this concern for balanced regional development that demand for new states arose in multilingual states. The movement for separate state for tribal territories, the demand for new industrial set-ups, the charge of partisan attitude of the Central Government and the recent propoganda for Sons-of-Soil Theory are nothing but manifestations of unequal pace of development. One may not fully agree with Selig Harrison when he states: "As population mounts, densely populated regions cry lebensraum at their neighbours. Bihari labourers flock to jobs in the mining and industrial towns bordering Bengal, and over corwded Bengal protests in return that the town should be the preserve of its own jobless. The tea plantations of Assam become a battle ground between rival groups of Assamese and Bengali unemployed. Tamilnad demands the border plantation land of Malayalam-speaking Travancore Cochin to protect Tamil coolies from Malayalee competition. With each year and more and more people-made more and more group-conscious by scarcity compete even more feverishly for limited economic spoils, the hope for ultimate escape from India's vicious circle grows more remote."[4]

The emerging challenge posed by glaring regional disparities is, however, highly disquitening and should be countered by a forward looking policy of balanced regional development. There seems a valid case for territorial division of labour together with sectoral division in order to ensure regional specialisation in productive endeavour. Unfolding of resource-based production cycles and maturation of economic regions will further strengthen the process of balanced regional development. The net outcome of this will be the consolidation of home market and strengthening inter-regional dependencies in the country.

Viewed in the above context, there seems to be no significant place to the demand for more power to states or the centre. If development process proceeds on the basis of territorial division of labour and maturation of economic regions, the states become stronger through the process of specialisation and differentiation and the centre becomes more strong through integration and interdependency. Failure to achieve the above is bound to make the centre and the state weak and the desired balance between centipetal and centifugal forces may not be achieved. It may be emphasised that in the development process, power is exercised for optimisation of growth with equity and not on ground of division of spoils among wielders of power.

In the context of the above, what should be our approach towards development in India? The flowering of diversities within the framework of an Indian ambience is a positive feature reflecting its unity in diversity. Attempts to "Indianise" Indians in the name of national integration are as deplorable as efforts to carve out "homeland" or erode the Union. Regional disparities may, howcever, be considered as the consequence of persisting attributes of underdevelopment and their minimisation constitutes one of the key tasks of socio-economic transformation. It may, therefore, be argued that national policies should be directed towards the flowering of diversities and liquidation of disparities within the national framework.

This brings us to the question of planning process wherein a lot of debate has been generated on centralisation vs decentralisation. In the context of development, unfortunately, there is no contradiction; contradictions are generated only to go away from the crucial points. There are well defined spheres where centralisation/decentralisation will have to be operationalised keeping in view the tasks involved. Thus, decentralisation may not become a cure for all ills and centralisation cannot be considered as an irritant in the development process. They constitute two sides of the same coin and concern for the two can be handled together. Going deep into the roots of this contradiction one finds that decentralisation is defined in negative terms wherein it is treated as going away from the centre. On the contrary, it is a move to strengthen the nation by ensuring people's participation and involving them in the decision making process that affect their lives. Decentralisation when defined in these terms arrive at a model of interdependencies where smaller systems get intertwined with larger systems and thus build a hierarchy of sub-systems each operating in their own area of influence.

The question of balanced regional development therefore, cannot be reduced simply to the question of centre-state relations. This reduction could have been justified on juridical ground had India been a federation. It is not; it is a Union and not a federation of states. This point is the most crucial which however, is seldom recognised. The people of India have given themselves a Constitution and sovereignty lies with them. The power of the State, Zila Parishad or Village Panchayat are all derived from the sovereignty of "We the people of India". In the case of federation sovereignty lies with the people of the federating units and the powers of the Centre are derived from the multiple sovereignties. The debate on centralisation- decentralisation, therefore, does not have any essence. There is a need for a proper blend of these two aspects so that a viable and effective planning mechanism can be operationalised.

While the concern for imbalances in economic development has found some place in planning endeavours, the concern for regional disparities in education is only an incipient phenomenon. This marginalisation may be understood in the context of relatively low importance of education in the overall planning efforts. It is only recently, that the role of education in accelerating the process of development is being emphasised and as a consequence one notes the concern for correcting some of the persisting distortions in educational development. Unfortunately, these distortions have eaten away much of the vigour of educational endeavours.

No doubt, there has been a phenomenal expansion of educational facilities during the last four decades of planned development, still there is a long way to go. The failure is generally recognised as an outcome, on the one hand, of the persistence of the distortions introduced during the colonial period and, on the other, of the infirmities and limitations of the current development strategies.

With the commencement of development planning, India entered a new era of educational development attended by unprecedented social response. The system gradually recovered from the impact of stagnation of the two centuries of colonial rule. However, the process of educational development, like economic development in its true character was neither homogeneous in regional spread, nor neutral to social formations. As the process of expansion got momentum, it revealed its strong bias in favour of the enclaves of development with stable economic and infrastructural base and against the backward regions of the country. Although the planning process has tried to check these distortions, the alarming magnitude of disparities is a matter of great social concern calling for deliberate intervention in favour of the lagging regions. Thus growth with equity is now considered to be one of the major goals of social planning.

The magnitude of inter-regional disparities in educational development may be illustrated with the help of following illustrations. According to Fifth All India Educational Survey, the population coverage by primary schools within a distance of 0.5 km in rural areas was total (100 per cent) in Union Territories of Delhi and Lakshadweep and it was as low as 73.30 per cent in the state of Arunachal Pradesh. These disparities become further sharpened at the district level. It is noted that the percentage population coverage by primary schools within 0.5 km was total in Pondicherry, Mahe, The Dangs, Wokha and Bhatinda districts, it was only 43.42 per cent in Chamba district. Similarly the age specific enrolment ratio for boys in age group 6-11 was as high as 146.32 per cent in West Tripura district as against 42.98 per cent in East Garo Hills district. In case of girls in the age group 6-11 years in rural areas, the highest age-specific enrolment ratio was 124.55 per cent in West Tripura district while the lowest of 10.62 per cent was reported in Kota district. Even in case of literacy while some of the districts have marched ahead to attain total literacy, the lowest male literacy rate of 32.7 per cent for Kishenganj and Rampur districts and the lowest female literacy rate of 7.7 per cent for Jolar district indicate the magnitude of regional disparities.

In view of the above, planning at district level acquires great significance more so when education-development linkages are being emphasised. The aim of development planning of which planning for educational development is an integral part, is to improve the quality of life of the people. This calls for coordinating educational endeavours with those in related socio-economic fields. Education is neither a derived parameter which is essentially determined by exogenous forces, nor is it an isolated one springing from and restricted to the individual psyche. It is intertwined in socio-economic development with every fibre of its being.

The papers contained in this volume deal with the issues raised above. These are being presented in three sections. The first section deals with the perspective; the second section presents the national scenario; and the third section analyses the state specific situation with respect to regional disparities in educational development and the possible remedies.

Bhambhri discusses the problem of disparities in a constitutional framework particularly with reference to social groups. He argues that educational process operates under a sociological law wherein advantaged groups get better education and the disadvantaged receive no or poor quality education.

There is a growing recognition of the fact that the physical capital by itself cannot act as an agent in the process of development unless it is complemented by the stock of human capital. Mathur attempts to relate this with the process of economic development in India. He observes that at disaggregated level, the inter-district disparity is much greater in terms of higher order components of the human capital stock. One of his significant findings is that "even those number of population who acquire education but do not actively participate in formal economic activity do play a role in contributing to raising the levels of development."

Nuna in his paper emphasises that the question of regional disparities has become significant in view of planning objective of 'growth with justice'. He argues that equalisation of educational opportunities does not necessarily mean the equality of utilisation as there are serious mismatches in input and output variables. There is a need to coordinate policies of educational development with those policies of other sectors of development.

Kolhatkar makes an extensive review of various measures undertaken and forseen to identify and minimise regional disparities in educational development. While analysing the issues under different Five Year Plans he describes the perspective in which they were perceived. A significant aspect which emerges is that the concern for regional disparities occupied only a marginal place in the entire planning endeavour.

Misra traces this marginalisation further and concludes that expansion of education has not led to enhancing technical and leadership skills needed for development. He attributes this to a misfit betwen the inherited education system and realities of rapidly changing societies. Bhat calls for adopting a micro-level planning in a multi-level framework to check the present distortions.

Throwing light on child education in rural India, Nalla Gounden concludes that land holding has a negative correlation with child schooling. Education of parents plays a significant role in determining both quantity and quality of children and there is a trade-off between the demand for quantity and quality of children in rural Indian households.

Chaubey cautions about generalisation on education-poverty linkages and argues that poverty situation cannot be studied without making reference to mode of production and production relations in which certain groups of people are forced to suffer.

Shri Prakash and Srivastava develop a model for location of educational institutions. They argue that no systematic attempt has been made to develop a theoretical framework for the purpose and thus locations are decided on ad hoc basis and not in tune with demographic structure and development needs. They developed the model for location of institutions based on child population, distance, raw material and market criteria.

Kusum Chopra explores the linkages between education, employment and earnings based on census data and degree holders and technical personel data of the CSIR. Varghese analyses the education-employment linkages at district level. He observes that generally educational levels of the workers are closely associated with the overall educational levels of the population. Education, particularly lower level education has more positive influence on the male work participation rates and almost a negative influence on the female work participation rates. On the other hand university education has strikingly more positive influence on female work participation rate.

Patnaik and Rajalakshmi in their paper analyse the role of urbanisation in development of education. Saraswati Raju in her paper explores the nature of disparities in female literacy in urban India.

Ahmad and Nuna analyse the problem of education in a tribal setting. They argue that education is a felt need and cannot be considered in isolation of the 'state of the society', its mode of production and the level of technological development it has attained. It is the collective heritage of the social group which is the basic criterion that makes a certain framework of education relevant.

Mukhopadhyay deals with the problem of education of the disabled. She argues that special education which is only an incipient phenomenon, too has significant regional imbalances in its coverage and outreach. She conlcudes that additional manpower will be required to oil the whole system in the time to come.

Harjit singh analyses the educational development in Leh district of Ladakh and attributes its backwardness to topography, climate, subsistence economy based on rudimentary cultivation or pastoralism and to the fact that most of the people are first generation learners. Analysing the issue in case of Punjab, Baldev Singh and Bansal in their paper show that over a period of time, inter-district disparities are declining as the districts with low base have tended to show higher growth rates.

Panwar and Vyas trace the origin of educational backwardness in Rajasthan and relate it to the social irritants and poor resources. Sinha while analysing the issue in case of Bihar argues that availability of educational facilities is a necessary condition, not a sufficient one and therefore, more attention needs to be paid to utilisation of educational facilities keeping in view the factor of social distance. Jaba Guha attempts an analysis of education of the girl child at primary level in West Bengal and considers this as the major stumbling block in the path of achieving UEE. She argues that suitable employment opportunities must be created for women in rural areas who have acquired a minimum standard of education. Sailabala has constructed a literacy index and cost weighted composite index to show that there are inter-district disparities in levels of educational development. She calls for an integrated approach to educational planning for correcting regional imbalances.

Highlighting the nature of regional disparities in educational development in Gujarat, Desai too calls for integrated educational strategy comprising economic upliftment, removal of cultural barriers, social involvement and management of relevant education. Banerjee traces the reasons for backwardness of education among the scheduled castes in Marathwada in the socio-political set up before and after the Independence. Sheela Prasad relates the educational development with health parameters in Andhra Pradesh. She also compares the regional disparities in education and health and notes that the disparities in health are more marked as there is less diffusion.

Analysing the tribal inequalities in education Sujatha notes that tribal population cannot be treated as a homogeneous group in planning for their education. Among the tribes differential approaches and treatment needs to be adopted based on their socio-economic and geographical situation.

Rao in her paper on Karnataka, notes that the performance of districts has improved since 1979-80. Yet their relative performance is not good. She argues that once the economy attains maturity, regional disparities in educational development are bound to get narrowed down considerably.

Nair in his paper emphasises the need for paying more attention to qualitative aspects in Kerala. He argues that the state which spends Rs. 193 per capita on education and where expenditure on education claims two-fifths of the state's revenue receipts cannot afford to remain indifferent to the quality of education particularly in the present context in which the state is hard pressed for resources for development of its materially productive sectors.

Sharma while analysing the problem in the north-east region concludes that mere establishment of institution of higher education without priority based considerations will be of limited service towards strengthening the educational base of the people of the region.

Premi and her colleagues analyse inter-tribal group disparities across the states using literacy rates and effective literacy rates. They note that there are significant variations across space and among different tribal groups in the same state. This calls for a differential strategy of educational development.

Sumitra and Jyoti attempt an analysis of inter-district and inter-state variations in educational development in the north-east. They develop a classification of districts for policy intervention wherein priority needs to be given to backward districts. Mohapatra analyses the determinants of literacy in the north-east and notes that female literacy plays a key role in explaining literacy among various categories. He also found that the average size of household is important and if it is brought down, it will lead to high literacy rates.

This volume is only an attempt to comprehend the nature of regional disparities in educational development. Scholars have analysed the problem in a variety of perspectives which have resulted in delineating the factors contributing towards the persistence of regional disparities in educational development. The variety of ideas contained in this volume will help in developing effective planning mechanism aimed at achieving the objective of growth with equity.

SHEEL C. NUNA

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ONE

Constitution, Education and Inherited Social Imbalances

C.P. Bhambhri

The making of Constitution for independent India was a challenging task because many formidable socio-economic goals had to be defined and concretised to take the country forward on the road towards social modernisation. The makers of Indian Constitution had to grapple with a complex inheritance and they were expected to synthesise many contradictory social challenges. A few specificities of our inheritance may be mentioned here. First, India inherited all the contradictions of a colonial economy. The whole of India was underdeveloped because of colonial exploitation and plunder. Within underdeveloped India, we inherited a few pockets of developed areas and thus we inherited underdevelopment and regional imbalances. Inherited imbalances were not only economic, they were reflected in the socio-cultural structure of the Indian society. Second, we inherited a wounded socio-cultural structure because of the policies of divide and rule followed by the colonial rulers. The British rulers followed their policies towards a logical end of partition and quit the country. The Constitution makers had to provide a healing touch and this required constitutional guarantees for the minorities. Third, India inherited a highly authoritarian social structure which was based on privileges for the higher castes and disabilities for the lower castes. The Constitution makers had to concretely respond to the specific socio-cultural problems faced by the minorities and the disadvantaged castes.

A multi-cultural, multi-religious and multi-lingual society poses complex questions for democratic political systems and the Indian Constitution had to reconcile many contending and competing pluralities of society. It was not an easy task because the Constitution of India was to perform the tasks of conflict-resolution.

A few specific features of the Indian Constitution may be mentioned here to understand the basic responses of the Constitution makers to the problem of India. First, the Constitution makers decided in favour of universal adult franchise and parliamentary form of democracy. Second, a democratic India had to provide fundamental rights to its citizens and in performing this task the Constitution makers responded by reconciling general rights of citizens with specific rights of disadvantaged social groups. Such a reconciliation between general and specific rights required guarantees and an independent Judiciary was assigned the tasks of defending the rights and resolving disputes among the contending social groups. An Indpendent Judiciary was to act as a guardian of the rights of the citizens and the disadvantaged social groups. Third, the Constitution makers recognised that a country like India could not be governed in a unitary and centralised framework. A complex federal system was evolved by the Constitution makers where powers of governance were divided between the central government and the state governments. The Constitution makers of India were involved in multiple tasks of grappling with our inheritance and laying down the foundations of a modern democratic, and federal political system and the whole effort of Constitution makers was directed towards reconciling many contradictory and seemingly irreconcilable social pressures.

During colonial rule, some castes and some communities achieved a few new social advantages because they benefited from formal education. Formal education opened new opportunities to a limited section of Indian society and it also created serious social imbalances. Castes and communities became forward and backward on the basis of availability or absence of opportunities of formal education. Formal education brought social privileges and absence of education brought deprivations and Indian society got fragmented among the educated castes and communities and those castes and communities which remained educationally deprived became the victims of social authoritarianism. Formal educational opportunities during colonial rule created new social hierarchies and serious social imbalances and distortions. The Constitution makers had to address themselves seriously to the problem of education because a section of Indians had experienced the advantages of education and an absolute majority of Indians had suffered deprivations because of many reasons including the absence of opportunities of formal education. On the basis of historical experience, Indians have come to recognise educational opportunities as a key which unlocks the processes of social advancement. Further, socio-economic development of modern India also required expansion of educational facilities but an apprehension existed that the new educational opportunities might be cornered by the already educationally advanced castes and communities. The Constitution makers had to respond to the apprehensions of the educationally deprived or backward castes and communities. How did the Constitution makers perform this difficult task in the field of education?

In the Directive Principles of State Policy, the Constitution of India mentions that:

> The State shall promote with special care the educational and economic interests of the weaker sections of the people, and in particular, of the scheduled castes and the aboriginal tribes and shall protect them from social injustice and all forms of exploitation. (Article 43)

Along with this was a Directive Principle that the Indian state will provide free and compulsory primary education within a period of ten years from the commencement of the Constitution. Thus the Constitution makers came authoritatively in favour of education for the Scheduled Castes and Tribes, because they had missed educational facilities during the colonial period.[1]

The Constitution of India did not express a mere pious wish about opportunities to the disadvantaged lower castes, it mentioned unambiguously about the abolition of untouchability and made its practice a criminal offence. It further mentioned that the state will have the power to reserve a percentage of seats for the Scheduled Castes and Tribes in educational institutions, and no educational institution maintained by public funds will deny admission on the basis of so called "untouchability". The doors of educational institutions will be open to the Scheduled Castes and Tribes as a right and the state shall also intervene by a policy of reservations.

The Constitution of India launched its first assault on educational deprivation of the Scheduled Castes and Tribes and instead of discriminations, the Constitution intervened in favour of the disabled castes by laying down legal responsibilities of the Indian state for education of the Scheduled Castes and Tribes. Under the framework of the Constitution, the Indian Parliament has legislated that any practice of "untouchablity" in the form of refusal of admission to any person is a cognisable offence.

Social imbalance on the basis of Caste system was boldly tackled by the Constitution makers, and during the last forty four years, the central and the state governments have legislated in favour of the Scheduled Castes, Tribes and other educationally "backward" castes and opportunities for education have been opened for them through legal intervention.

Another social group which attracted the attention of the Constitution makers was what is described as "minorities". India has religious, cultural and linguistic minorities which are scattered throughout the country and many of these minority groups suffered from serious educational deprivation during the colonial period. The Constitution makers had to tackle this specific inheritance also.

Two conflicting views have been expressed on the constitutional scheme regarding educational safeguards for the minorities in India.
Sir Ivor Jennings maintains that:

> Indeed, the most complete disregard of minority claims is one of the most remarkable features of Indian federalism. The existence of competing claims on religious and ethnic grounds was one of the reasons given *for the refusal of Indian independence before 1940*. By reaction the Congress politicians, who were above all nationalists, tended to minimise the importance of minority interests and emotions.[2]

As opposed to Jennings opinion, is that of Basu, who observes:

> Our Constitution, therefore, prescribes certain temporary measures to help the backward sections to come up to the same level with the rest of the nation, as well as certain permanent safeguards for the protection of the cultural, linguistic and similar rights of any section of the community who might be said to constitute a "minority" from the numerical, *not communal*, point of view, in order to prevent the democratic machine from being used as an engine of oppression by the numerical majority.[3]

Minorities are a reality of Indian society and the constitution makers addressed themselves not to promote "minorityism" but to safeguard their culture and to promote their education. K.M. Munshi presented a questionnaire on Minorities to the members of the Sub-Committee on Minorities of the Constituent Assembly of India. The following questions were posed:

1. What should be the nature and scope of the safeguards for a minority in the new Constitution?
2. What should be the political safeguards for a minority (a) in the Centre; (b) in the Provinces?
3. What should be the economic safeguards for a minority (a) in the Centre; (b) in the Provinces?
4. What should be the religious, educational and cultural safeguards for a minority?
5. What machinery should be set up to ensure that the safeguards are effective?
6. How is it proposed that the safeguards should be eliminated, in what time and under what circumstances?[4]

Many members expressed their opinions on the ticklish issue of rights for minorities, and K.T. Shah administered a warning:

> The rights of communities based on religion or race would have to be defined with care and precision, so as not only to meet all the just demands for safeguarding their religion and culture, but also to prevent any abuse of the rights guaranteed to minorities as against the rest of the community. The rights of minorities were not the obligations of the majority alone, but rather the guarantees of the entire community.[5]

The Advisory Committee discussed the report of the Minorities Sub-Committee and stated:

> In particular, we think it is a fundamental duty of the State to take special steps to bring up those minorities which are backward to the level of the general community.[6]

The Constitution of India provides for protection of religious freedom, and linguistic and cultural freedom to all communities with a view to safeguard the interests of cultural and linguistic minorities of India. The Constitution provides for a right of admission to educational institutions and it clearly states that:

> No citizen shall be denied admission into any educational institution maintained by the State or receiving State aid, on grounds only of religion, race, caste, language or any of them. (Article: 29 (2))

The Constitution further guarantees that:

> All minorities, whether based on religion or language, shall have the fundamental right to establish and administer educational institutions of their choice.[7] (Article: 30 (1))

The Constitution of India, Parliament, State legislatures and the Indian Judiciary and institutional arrangements for the protection of religious, cultural, linguistic and educational rights of minorities in the country.

The Forty Second Amendment (1976) of the Constitution of India transferred "education" from the State List to the Concurrent List and thus the Central Government has assumed direct responsibility and leadership in promoting educational facilities for all sections of the society including minorities. Justice Sarkaria "Commission on Centre-State Relations" did not favour the reversal of 42nd Amendment of the Constitution but it maintained that:

> However, education continues to be a very sensitive issue. In formulating a national education policy, or in its review the Union should not take a rigid stand on its paramount authority, but ensure that such a policy is framed through a process of dialogue, discussion and persuasion on the basis of consensus between the Union and the States.[8]

Even before Forty Second Amendment of the Constitution, the Central government had a few special responsibilities for education of minorities and the Amendment only extends that role. Sarkaria Commission issued a warning:

> If the power of vote that democracy gives us is used thoughtlessly, or fanatically along communal lines, it may eventually sound the death knell of secular democracy itself, in our heterogeneous society. And this is where sound codes of conduct and convictions play a crucial role.[9]

Constitutional Practice and Social Imbalances in Education

Political and socio-economic developments of the last forty four years concretely reveal a few specific features regarding the socially disadvantaged groups in the field of education.

I. In all class-divided societies a *Sociological Law* of education operates in favour of the advantaged and against the disadvantaged social groups. The socially advantaged groups receive superior quality of education, and the socially disadvantaged groups either receive no education or they receive a very poor quality of education.

Constitutional provisions and public policies play a very balancing role of reconciliation among contending and competing social forces and such a balancing role is not an easy one in a class, caste and religiously divided society of India. Maulana Abdul Kalam Azad, the first Minister of Education of India asserted the need of "central guidance, if not central control" in education, and he demanded the earmarking of 15 per cent of the central expenditure, 25 per cent of State expenditure and 35 per cent of the expenditure of local bodies for education, science and culture.[10]

During the last forty two years, educational facilities have expanded but they have not come to the expectations of Maulana Azad. Expansion of education has accentuated social inequalities because quality education has escaped the poor and the socially deprived groups. India inherited a highly unequal society, and the developments of last forty two years have opened new educational opportunities which are unequally shared among the advantaged and the disadvantaged and social imbalances on the basis of education have become acute. Public policy makers have intervened in favour of educationally deprived social groups but the goal of redressal or social imbalances has not been achieved and there is no possibility of its success in the near future. Social imbalances and inequalities in India are structural and educational development of last forty two years clearly reflects this harsh reality.

II. The policy of reservation for the Scheduled Castes and Tribes was a social imperative, and education because of reservation has opened new opportunities for a section of the Scheduled Castes and Tribes. The policy of reservations for these socially discriminated groups should continue because a large sections of the Scheduled Castes and Tribes have still not benefited from this policy. Protests against reservation for the Scheduled Castes and Tribes are motivated by the vested powerful social interests. The demonstration effect of education for social mobility is felt within the scheduled castes and tribes. Ghanshyam Shah observes:

> Though the rate of literacy among the Adivasis is 14 per cent in Gujarat, less than 3 per cent have acquired high school and college

> education. Most of these educated Adivasis belong to the middle and rich cultivators strata. Some of them are employed in government and semi-government white-collar jobs those who are studying also aspire to similar jobs.[11]

Two issues emerge from Shah's study. First, the efforts to educate the Tribals have yet to reach a reasonable level and critics have started crying pre-maturely. Second, a direct link exists between education and social mobility and education is a pillar to make the socially advantaged stand on their own. The opposition to reservation is motivated and the goals enshrined in the Constitution should be pursued because they still remain valid social goals as social imbalances persist.

III. Cultural and religious minorities have legitimate educational aspirations and the Constitution of India recognised their specific needs and deprivations from which they had suffered. At the same time, the Constitution makers were apprehensive of "minorityism" and communal elements within the majority keep on raising the issue of rights of minority institutions. It must be recognised unambiguously that religious, cultural and linguistic minorities have specific problems and aspirations and majority-minority perceptions in India have history of fears and animosities. If a section of the majority is concerned about "minorityism, the majority community should deny itself the rights to establish educational institutions in the name of castes of Hindu Community. If Banaras Hindu University is maintained by public funds, minority institutions will have to be maintained by public exchequer.

A broader issue is: how do we reconcile minority specificities and education for secularism in India? How do we remove educational backwardness of the minorities and integrate various communities in India? Education can strengthen secularism, it can also promote communalism. India is witnessing competitive communalism and it has been argued that the majority and minority community educational institutions supported by public funds have contributed to its institutionalisation.

In conclusion, it may be mentioned that India inherited serious social imbalances and the Constitution of India addressed itself to this question. Education is a very important social input to correct social imbalances, and the Constitution makers attached great importance to it. The proclaimed goals of correcting inherited social imbalances through the intervention of education is a continuing struggle, and Indian society is still grappling with it.

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TWO

The Human Capital Stock and Regional Economic Development in India

Ashok Mathur

1. Introduction

One of the major developments in the field of growth economics over the past three decades has been a growing recognition of the fact that physical capital by itself cannot act as an agent in the process of development unless it is complemented by simultaneous expansion in the stock of human capital (Schultz, 1961; Harberger, 1965). This has led to the role of education being termed as the "human investment revolution in economic thought" (Bowman, 1966). Assimilation of this attribute into a framework for analysis of development carries some important implications. It obviously implies that models which treat labour as a single homogeneous input provide an inadequate analytical approach to the study of development. Manpower gets differentiated into atleast two categories — labour which has not gone through any stage of formal education or training and labour in which resources have been invested to provide it education and skills. It is the latter category of labour which comprises the human capital stock of a national economy. Only the former category can be considered as 'pure labour' in its 'natural' form.

But the stock of human capital itself is a concept which has to be dealt with as a vector consisting of heterogeneous components, the various components representing different levels and types of education which have been imparted to the available stock of manpower. The structure of these heterogeneous components are also a manifestiation of the level and spread of technology being used in an economy. The greater the weightage within an economy of the components representing higher levels of educational attainment and professional expertise, the higher the level of technology being used within the economy. Further, given the significance of human capital stock for achieving higher levels of development, an examination of the structure of human capital stock and the nature of relationship between attainment in terms of the different components of human capital stock and the level of development becomes an issue of considerable significance. This can help to throw some light on the direction which educational planning policies may follow.

It may be pointed out in this context that the approach of investigating educational attainment in terms of levels of literacy, on which a lot of useful work has been done in India and elsewhere, although essential for specific purposes, is rather deficient in so far as it clubs together all levels of educated population into the single category of literate manpower. Two regions with the same level of attainment in terms of literacy percentage but differing substantially in terms of composition of the literate manpower stock cannot be equated in terms of their human capital stock. If one region has a much higher proportion of highly qualified and technically trained manpower while the other has a much higher proportion of primary/middle school qualified manpower, the former region shall depict a superior stock of human capital vis-a-vis the second region. In view of the present author, it is important to look behind the simple literacy percentage and to consider the human capital stock within a disaggregated analytical framework.

Finally, a distinction needs to be made between total stocks of the different components of human capital and the "productively employed" segment of the total human capital stock. At any given moment of time, all the manpower with different levels of educational attainment is not economically active. In a narrow sense, the use of resources which go to educate and train manpower that does not finally get absorbed in productive activity, may not be considered as investment for the purposes of human capital formation. Resources devoted to educating population which does not participate in economic activity can be viewed as resources devoted to provision of education as a "consumption good" (Lazear, 1977; McMahon, 1987a). However, we also know that the process of education has substantial 'external benefits' (Weisbrod, 1964; Hirsch and Marcus, 1969; McMahon, 1987b) through various indirect channels like the role of educated but non-employed housewives in raising the overall efficiency and productivity within an economy through more effective child rearing and educationally conductive home environment, even the "non-productive" stock of human capital could be contributing to raising the level of development (Leibowitz, 1974). Moreover, this "non-productive" stock of human capital does represent potential stock of human capital which can be drawn upon for productive use. Bulk of the analysis in this paper is, therefore, carried out in terms of total stocks of human capital, that is inclusive of the "non-productive stocks" of human capital, but in view of significance of distinction between these two measures of human capital stock, some of the core areas of analysis have been conducted in terms of both concepts of human capital.

The contents of the present paper need to be viewed in the above background. It sets out to study ten facets of the stock of human capital within India, which may be enumerated as follows:

(a) To estimate statewise and districtwise levels of attainment in terms of the total stocks of human capital, disaggregated into nine components (Section II).

(b) To examine districtwise regional disparity within India in terms of different components of the total human capital stock (Section IV).

(c) To examine rural-urban differentials in terms of different components of the total human capital stock and their spatial disparity (Section IV).

(d) To compare districtwise regional disparity in components of the total human capital among different states of India (Section IV).

(e) To examine gender dimension of regional disparity in terms of human capital stocks (Section V).

(f) To see whether regional disparities are greater in terms of total human capital stocks or in terms of the "productively employed" human capital (Section V).

(g) To examine relationship between attainments in terms of different components of the human capital stock and the overall level of regional development (Section VI).

(h) To examine as to how far the relationship between components of human capital stock and the level of regional development differs as between the rural segment, which is essentially agriculture based, and the urban segment, which is primarily industry and service sector based (Section VI).

(i) To value the human capital stock in India and examine regional disparities in terms of the value of human capital stock (Sections VI and VII).

(j) To examine the relationship between value of human capital stocks and level of development with the help of multiple regression analysis (Section IX).

(k) To see what policy implications can be derived from the above empirical analysis (Section X).

The investigation of the above mentioned issues in this paper is based on district level data for 1971 as available in the relevant state level volumes of the Population Census of 1971. When work on this study was started the relevant data on all variables used in this study were not available for 1981. All districts of India have not been covered but a very high proportion of districts and population of India have been brought within the umbrella of analysis. The total number of districts included in this study are 306. Only the districts belonging to HP, J&K, Union Territories and the very small states have been left outside the purview of this paper.

The number of components of human capital stock used in this study has been determined by the form of data available in the Census of 1971. The Census classified population into seven categories of educational attainment in case of the rural segment and nine in case of the urban segment. If we add the completely non-educated (illiterate) category, components of the manpower vector can be enlisted as below:

Rural Segment	*Urban Segment*
0. Illiterate	0. Illiterate
1. Just literate	1. Just literate
2. Primary qualified	2. Primary Qualified
3. Middle qualified	3. Middle qualified
4. Matriculates	4. Matriculates
5. Non-Technical Diploma Holders	5. Non-Technical Diploma Holders
6. Technical Diploma Holders	6. Technical Diploma Holders
7. Graduates and above	7. Graduates
	8. Non-Technical Postgraduate degree holders
	9. Technical Postgraduate degree holders

For those parts of analysis where districts have been considered as a whole, the three highest components of human capital (Stock Nos. 7, 8 and 9) have been clubbed together for the urban segment in order to make them comparable to the rural classification and hence to make them additively possible.

II. The Human Capital Stock in India: A Bird's Eye View

We must now indicate the variables which have been used to measure district level attainment in terms of different components of human capital stock. One cannot obviously use absolute number of persons with different educational attainments for this purpose since the size of districts varies considerably. In order to eliminate the influence of variation in size, the stocks of different components of human capital have been expressed in per-capita form, similar to the way in which per capita income estimates are derived. Thus the degree of availability of human capital stock with educational attainment of level (i) in segment (s) of district (j) can be denoted as:

$$h_{ij}(s) = H_{ij}\frac{(s)}{P_j(s)}$$

$i = 1,2,...,9$ for urban segment
$i = 1,2,...,7$ for rural segment
$j = 1,2,...,306$

where $H_{ij}(s)$ is total number of persons with educational attainment (i) in segment (s) of district (j);

$P_j(s)$ is total population of segment (s) of district (j); (s) represents rural segment, urban segment or combined rural plus urban segments.

Similarly, the components of the "productively employed" stocks of human capital per-capita can be denoted as;

$$w_{ij}(s) = W_{ij}\frac{(s)}{P_j(s)}$$

where $w_{ij}(s)$ is the total number of workers with educational attainment (i) in segment (s) of district (j).

Those without any formal education is denoted by $i = 0$. H_{0j} and W_{0j} thus represent the total stock of 'pure' labour and stock of 'pure' labour which is productively employed. These categories obviously do not belong to the stocks of human capital.

All-India position about human capital stocks per-capita for the rural and urban segments combined is given in Table 1(a). It may be pointed out that the all-India figures as given in this table depict simple average of the estimates for 306 districts covered in this paper. As may be expected, the stocks per-capita decline with a rise in the level of education,

Table 1 Human capital stocks per-capita: All India 1 (a): Overall picture ($R + U$)

	Stocks per-capita × 100									
	'Pure' labour (Illit.)	Just liter-ate	Pri-mary	Middle	Matric	Non-tech diploma	Tech. dip-loma	Gradu-ates & above	Post-Gradu-ate (Non-tech)	Post-Gradu ate (Tech.)
Total H. capital stocks	72.47	9.38	10.05	4.66	2.86	0.09	0.06	0.50		
Productively employed stocks	21.82	3.30	4.36	2.03	1.50	0.06	0.05	0.35		
1(b): Rural Segment										
Total H. capital stock		8.31	9.31	3.56	1.53	0.094	0.028	0.159		
Productively employed stocks		3.30	4.32	1.69	0.87	0.066	0.021	0.113		
1(c): Urban Segment										
Total H. capital stock	51.06	15.05	13.33	9.73	8.56	0.05	0.18	1.20	0.40	0.35
Productively employed stocks	10.87	3.64	4.56	3.60	4.25	0.03	0.15	0.78	0.31	0.29

except as one moves from 'just literate' level to the primary qualified level. The highest level of stock per-capital is that of primary qualified persons. This is true whether one is considering total human capital stocks or the 'productively employed' human capital stocks. However, when we consider the rural and urban segments separately, as portrayed in parts b and c of Table 1, whereas rural segment conforms to the above mentioned pattern, in case of the urban segment there is a slight difference. Here the highest stock per-capita occurs in case of 'just literate' category rather than in case of the primary qualified manpower.

Two more dimensions of the human capital stocks are also worth noting. While in case of general education, the stocks per-capita decline as one moves up the educational ladder, in case of professional education the stock of diploma holders per-capita is much less than that of postgraduate technical and non-technical degree holders per-capita. This is a reflection of some of the weaknesses of the vocational education system in India. Secondly, it may be noted that the gap between total human capital stock per-capita and 'productively employed' human capital stock per capita is the least in case of those with a technical diploma or a technical post-graduate degree, thus showing the maximum rate of economic utilisation of human capital in case of these two categories.

When we come to the statewise picture of human capital stocks, the ranking of states in terms of different components of human capital is not identical, as is evident from Table 2. While columns 2 to 8 indicate human capital stocks per-capita and their statewise ranking, column 1 gives the stock of illiterate manpower per-capita. This variable is thus the mirror image of literacy percentage. In order to enable a comparison of ranks in terms of human capital stocks per-capita with statewise ranks in terms of literacy percentage, col. 1 gives ranks of states in an inverse order. Kerala does emerge to hold the first rank not only in terms of literacy, as is well known, but also in terms of per-capita stocks of just literate, primary and middle qualified as well as technical diploma holders. But in terms of matriculates and graduates it comes down in its rank to the second and third positions respectively. In respect of matriculates per-capita, the first rank is occupied by Punjab. For 'graduates and above' per-capita, the first rank goes to West Bengal, whose stock of 'graduates and above' (0.98) is far ahead of the next ranking state, namely Punjab (0.65).

One other prominent feature of statewise stocks per-capita is worth noting. If one considers the ranking of states in terms of the different stocks of human capital per-capita, the ranks vary considerably across different components of the human capital in case of most states. In order to obtain some idea of this rank variability, the last column of Table 2 gives difference between the highest and lowest rank of a state in terms of different components of human capital per-capita for each state. It may be observed that Kerala turns out to be the most consistent state in terms of all-round human capital development since the Max-Min difference is only two as against a rank difference ranging from 6 to 13 in case of the other states. The highest max-min. difference — that of thirteen — occurs in case of West Bengal, which reveals a high degree of imbalance in the structure of its human capital stock compared to the other states. This type of structural imbalance in ranking is substantial in case of Karnataka as well, the max-min difference being twelve. This form of rank variability does bear out the point stressed earlier, that simply by looking at literacy percentage, one cannot assess the true position of a state regarding attainment in terms of stocks of human capital of different types, since there is considerable rank variability in the human capital structure of various states.

Tables 3 and 4 portray the position of human capital stocks in rural and urban segments of the different states. As may be envisaged, stocks per-capita are much higher in the urban segment compared to the rural segment for all components of human capital. Further the rank variability, as reflected in max-min rank difference among the human capital stocks of each state, is generally higher in urban segment than in the rural segment. In case of Kerala, whereas in the rural sector this state occupies the first rank in case of all components of human capital, in case of the urban segment the ranks of Kerala in terms of the various human capital components vary from 1 to 10. The unique feature of Kerala thus emerges to be achievement of a uniformly high human capital stock content within its rural segment. There are some other states as well for which rural max-min rank difference is relatively small. These are MP, with a max-min rank difference of 4, and Punjab and Rajasthan with a max-min rank difference of 7. In case of MP and Rajasthan the rank difference is low on account of most of ranks being low while in Punjab the rank difference is low since most ranks are high. Thus, MP, Rajasthan and Punjab cannot be clubbed together into a single category.

In contrast to the rural picture, when we come to the urban segment, there are three states where the max-min difference is as high as fourteen, namely Gujarat, UP, and West Bengal. In case of each of these states there is some component of the human capital stock for which the state ranks the highest while for another component the same state ranks among the lowest.

Table 2 Human capital stocks per-capita: Statewise (*R+U*)

State	Total stocks per-capita × 100 and State ranks								
	'Pure' labour (Illit.)	Just literate	Primary	Middle	Matric	Non-tech. diploma	Tech. diploma above	Graduate & difference	Max-min rank
Andhra Pradesh	76.63	6.55	10.17	3.70	2.48	0.04	0.06	0.37	
	XI	XIII	IX	XI	X	XII	V	XIII	8
Assam	70.03	9.19	11.22	7.37	1.69	0.09	0.03	0.38	
	VIII	VI	VII	III	XIV	VI	XII	XII	11
Bihar	79.75	7.69	4.14	5.53	2.31	0.07	0.04	0.48	
	XIV	XI	XV	VII	XIII	VIII	IX	X	8
Gujarat	66.48	17.51	9.07	3.02	3.23	0.10	0.05	0.53	
	V	II	XI	XIII	XI	V	VII	V	11
Karnataka	68.93	6.25	14.28	6.04	3.93	0.06	0.09	0.42	
	VI	XIV	II	V	V	IX	IV	XI	12
Haryana	73.33	8.38	9.49	5.17	2.99	9.20	0.03	0.52	
	IX	X	X	IX	VII	II	XI	VII	9
Kerala	40.08	18.58	25.33	10.06	4.61	0.41	0.29	0.65	
	I	I	I	I	II	I	I	III	2
Madhya Pradesh	78.43	8.87	7.07	2.82	2.23	0.05	0.03	0.50	
	XIII	VII	XIII	XIV	XI	XI	XIII	VIII	7

Maharashtra	63.30 III	11.83 IV	13.18 V	7.84 II	2.84 VIII	0.07 VII	30.12 III	0.53 VI	6
Orissa	75.79 X	**4.04** **XV**	14.16 IV	4.33 X	1.01 XV	0.06 X	0.04 X	0.26 XV	11
Punjab	65.97 IV	**9.90** **V**	13.05 VI	5.19 VIII	4.95 I	0.10 IV	0.19 II	0.65 II	7
Rajasthan	81.85 XV	8.62 IX	4.90 XIV	2.15 XV	2.08 XII	0.02 XV	0.02 XV	0.36 XIV	6
Tamil Nadu	59.36 II	14.90 III	14.22 III	6.73 IV	4.18 III	0.02 XIII	0.06 VI	0.53 IV	10
Uttar Pradesh	77.79 XII	7.23 XII	8.15 XII	3.48 XII	2.68 IX	0.16 III	0.02 XIV	0.48 IX	11
West Bengal	69.41 VII	8.80 VIII	10.87 VIII	5.88 VI	3.09 IV	0.02 XIV	0.05 VIII	0.98 I	13

Note: Roman numerals indicate the rank of states within each column.

It may be mentioned that all state level per-capita figures in this and other state level tables have been derived as simple average of district level figures.

Table 3 Statewise human capital stocks per-capita: rural segment

State	Total stocks per-capita × 100 and State ranks								
	'Pure' labour (Illit.)	Just literate	Primary	Middle	Matric	Non-tech. diploma	Tech. diploma above	Graduate & difference	Max-min rank
Andhra Pradesh	81.44	4.92	9.25	2.85	1.37	0.03	0.02	0.11	
	XII	XIII	X	XII	IX	XII	V	XIII	9
Assam	72.64	8.88	10.69	6.30		0.18	0.02	0.19	
	VI	VI	VII	II	XI	V	XI	IV	9
Bihar	82.87	6.34	3.81	4.58	1.49	0.88	0.02	0.21	
	XIII	XI	XIV	VI	VIII	VIII	VI	III	11
Gujarat	72.56	16.60	7.14	2.38	1.05	0.12	0.02	0.14	
	V	II	XII	XIII	XII	IV	X	IX	11
Karnataka	74.11	4.73	14.06	4.62	2.27	0.06	0.05	0.11	
	VII	XIV	III	IV	III	X	III	XII	11
Haryana	78.25	7.15	9.27	3.04	2.20	2.15	0.01	0.15	
	X	IX	IX	X	V	III	XV	VIII	12
Kerala	41.14	19.06	25.51	9.32	3.90	0.46	0.21	0.29	
	I	I	I	I	I	I	I	I	0
Madhya Pradesh	83.31	7.12	6.31	2.10	0.96	0.05	0.01	0.14	
	XIV	X	XIII	XIV	XIV	XI	XIII	X	4

Maharashtra	69.37	11.31	12.27	5.64	1.19	2.03	0.02	0.12	
	III	IV	VI	III	X	VII	IX	XI	0
Orissa	77.90	2.90	14.59	3.68	0.77	0.06	0.02	0.08	
	IX	XV	II	IX	XV	IX	VIII	XV	13
Punjab	71.45	9.02	12.42	3.92	2.85	0.09	0.07	9.20	
	IV	V	IV	VIII	II	VI	II	V	7
Rajasthan	86.71	7.27	3.72	1.27	9.92	0.02	0.01	0.10	
	XV	VIII	XV	XV	VIII	XIV	XIV	XIV	7
Tamil Nadu	66.38	14.40	12.28	4.58	2.18	0.01	0.02	0.16	
	II	III	V	V	IV	XV	XI	VII	13
Uttar Pradesh	91.05	6.23	7.78	2.90	1.67	0.12	0.02	0.18	
	XI	XII	XI	XI	VII	II	VII	VI	10
West Bengal	75.58	8.34	10.01	4.01	1.74	0.02	0.02	0.27	
	VIII	VII	VIII	VII	VI	XIII	IV	II	11

Note: Roman numerals indicate the rank of states within each column.

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Table 4 Statewise human capital stocks per-capita: urban segment

State	Total stocks per-capita × 100 and State ranks										
	'Pure' labour (Illit.)	Just literate	Primary	Middle	Matric	Non-Tech. diploma	Tech. diploma	Graduate	Post graduate (Non-tech)	Post graduate (Tech)	Max-Min rank difference
Andhra Pradesh	55.43	14.05	14.42	7.47	7.02	0.08	0.22	0.82	0.16	0.34	
	XII	VIII	IX	XI	XV	IV	V	XIV	XIII	X	11
Assam	39.21	13.24	17.80	10.61	7.58	0.04	0.13	1.70	0.39	0.29	
	II	XII	III	I	X	VIII	X	II	V	XIII	12
Bihar	56.31	13.60	6.77	12.65	8.15	0.03	0.09	1.63	0.45	0.33	
	XIV	X	XV	V	VIII	IX	XIII	III	III	XI	12
Gujarat	46.83	21.05	15.21	5.06	9.85	0.03	0.16	1.15	0.22	0.44	
	V	I	VII	XV	III	XI	VII	IX	XI	VI	14
Karnataka	50.34	11.19	15.61	11.38	9.82	0.05	0.22	0.89	0.15	0.35	
	VIII	XV	V	VIII	IV	VI	IV	XII	XIV	IX	11
Haryana	50.81	14.19	10.07	14.99	7.22	0.44	0.10	1.37	0.32	0.50	
	IX	VII	XIII	II	XIII	I	XII	IV	VIII	IV	12
Kerala	34.53	16.14	24.67	13.84	8.22	0.12	0.71	1.07	0.23	0.47	
	I	V	I	IV	VII	III	I	X	X	V	9
Madhya Pradesh	52.42	18.51	11.33	6.73	8.68	0.01	0.10	1.29	0.59	0.33	
	X	II	X	XIII	VI	XIII	XI	VI	II	XII	11

Maharashtra	46.60	12.88	16.68	14.55	7.41	0.02	0.41	0.96	0.20	0.36	
	IV	XIII	IV	III	XII	XII	III	XI	XII	VIII	10
Orissa	52.52	17.71	9.04	11.41	7.09	0.01	0.19	1.15	0.31	0.58	
	XI	III	XIV	VII	XIV	XIV	VI	VIII	IX	I	11
Punjab	47.64	13.41	14.50	9.45	12.01	0.15	0.64	1.28	0.39	0.53	
	VII	XI	VIII	X	I	II	II	VII	IV	II	10
Rajasthan	58.01	15.57	10.91	6.41	7.52	0.03	0.06	0.88	0.37	0.26	
	XV	VI	XII	XIV	XI	X	XIV	XIII	VI	XIV	9
Tamil Nadu	44.41	16.24	18.87	11.17	8.02	0.05	0.14	0.48	0.10	0.53	
	III	IV	II	IX	IX	VII	VII	XV	XV	III	13
Uttar Pradesh	55.78	14.02	11.02	7.46	9.33	0.05	0.05	1.35	0.72	0.21	
	XIII	IX	XI	XII	V	V	XV	V	I	XV	14
West Bengal	46.53	11.29	15.25	12.62	11.33	0.01	0.16	2.07	0.36	0.39	
	VI	XIV	VI	VI	II	XV	VIII	I	VII	VII	14

Note: Roman numerals indicate the rank of states within each column.

IV Regional Disparities in Human Capital Stocks

Substantial economic disparities are known to be prevalent within India. How far are spatial variations in development of the human capital stock responsible for these? This is a theme to which we turn in the next section. But before turning to that theme, it is imperative to examine the nature and magnitude of spatial disparities in the stock of human capital. During the course of economic evolution, it has been pointed out (Foster, 1987), "while absolute levels of enrolment everywhere rose, regional differentials in access also increased, with the gap between 'leading' and 'backward' areas becoming more pronounced." What is the situation in this respect within India? The preceding portrayal of human capital stocks conveys some idea of spatial variations in the existence of human capital stocks. In order to obtain a more precise picture of various dimensions of this spatial disparity, specifically to see whether the extent of this disparity differs substantially for various components of the human capital stock, coefficients of variation across districts were estimated for each component of the stock. Table 5 gives these estimates for the country as a whole. Table 5a gives the estimates for the rural and urban segments combined together. As may be seen from the first row, the level of spatial disparity tends to rise with the level of educational attainment and quite sharply for levels of educational attainment beyond the stage of matriculation. It is the highest in terms of technical diploma holders, which points to the need for a much wider spread of facilities for provision of technical education below the degree level. The pattern of disparity is broadly the same for total stocks of human capital as well as for the "productively employed" stocks of human capital (row 2, Table 5a), although disparity in terms of the "productively employed" stocks is marginally less than in case of the total stocks.

If we look at disparity in human capital stocks separately for that rural and urban segments (Tables 5b and c), it may be observed that inter-district disparity is much higher in rural areas than in urban areas in case of all components of the human capital stock, except for non-technical diploma holders, where the disparity emerges to be higher within the urban segment. Two more differences in the rural and urban patterns of disparity may also be noted. First, for human capital stocks up to the level of matriculates the disparity in terms of total stocks is greater than for the 'productively employed' stocks in the rural areas, but the reverse position exists in case of urban areas. Secondly, in rural areas inter-district disparity is roughly of the same magnitude for lower order human capital stocks, that is, up to the matriculate level. But in urban areas there is an

Table 5 Inter-district variability of human capital stock per-capita
Coefficients of Variation (percentage form)

	'Pure' labour (Illit.)	Just literate	Primary	Middle	Matric	Non-tech. diploma	Tech. diploma	Graduates	Post-graduates (Non-Tech.)	Post graduates (Tech.)
5a: All India picture (rural plus urban)										
Total human capital stocks	15.82	50.62	53.26	56.36	64.74	124.99	139.74	107.22		
Productively employed human capital stocks	29.33	52.14	53.04	49.81	59.59	131.47	136.05	99.22		
5b: All India rural segment										
Total human capital stocks	13.65	61.54	61.60	59.17	60.70	136.59	197.62	68.20		
Productively employed human capital stocks	27.25	58.65	58.40	49.65	48.04	138.94	194.88	61.98		
5c: All India urban segment										
Total human capital stocks	16.35	22.84	31.03	39.74	27.80	154.84	106.85	51.48	74.64	56.32
Productively employed human capital stocks	27.89	00.09	32.21	41.67	29.22	152.53	105.28	51.06	69.36	55.86

increase in disparity up to the level of middle stage qualified manpower.

The picture painted above pertains to inter-district disparities in human capital attainment for the country as a whole. But the extent of inter-district disparity may not be uniform across states, as in case of many economic disparities. In order to assess such differences in inter-district disparity, coefficients of intra-state variations in human capital stocks were estimated for each state and these are given in Table 6, together with ranks of these coefficients for each type of human capital stock. There are four states which stand out as having comparatively low coefficients of variation for most components of the human capital stock. These are Kerala, Haryana, Punjab and Bihar. At the other end lie three states with a very high degree of intra-state disparity in human capital stocks, namely Andhra Pradesh, MP, UP, Karnataka and Maharashtra also reveal rather high inter-district disparity in human capital stocks. In case of the other states the rank position regarding inter-district variability differs too much among different components of human capital stocks to permit a generalisation about inter-district variability for all components taken together.

V. Disparities in Human Capital: The Gender Dimension

Finally, we may take a look at another facet of regional disparities in human capital attainment of different regions. Unlike physical capital, human capital can be bifurcated into two categories based on differentiation in terms of gender. For this purpose gender based per-capita human capital stocks were estimated for each district in a manner similar to that for the overall estimates of human capital per-capita. The stocks of males and females with each type of educational attainment were divided seeparately by the total population of respective districts, that is;

$$h_{ij}(s, g) = \frac{H_{ij}(s, g)}{\Sigma_g P_j(s, g)}$$

where $g = m$ (male), or f (female)

$h_{ij}(s, g)$ gives the stock of human capital of type i, gender g, in segment (s) of district (j).

It may be noted that the denominator contains $\Sigma_g P_j(s, g)$, that is, total population of segment (s) of a district and not the population of that gender alone for which the stock per-capita is being estimated. This enables additivity of gender-wise human capital stocks to obtain total human capital stocks per-capita.

Gender-wise coefficients of variation based on these per-capita estimates for all the 306 districts are given in part (a) of Table 7. As may be observed, the inter-district disparity is much greater for female human capital stocks per-capita than for male human capital stocks per-capita. This is true of both rural and urban segments when they are considered separately (Table 7, parts b and c), but the gap between male-female coefficients of variation is much greater in the rural segment. In case of urban segment, up to the matriculate level the inter-district disparity in terms of female stock is only marginally higher than that in case of males, thus indicating that urbanisation does tend to bring down inter-gender disparities in terms of education.

The inter-district disparity in terms of the stock of professionally qualified females, both the technical and non-technical diploma holders, is very substantial in rural as well as in urban areas. This points to the need for improving facilities for professional education of women and making the availability of these facilities geographically more widespread as well as more easily accessible to them.

VI. The Relationship of Human Capital Stocks and the Level of Development

We now come to the central issue, namely the nature of relationship between stocks of human capital and the level of regional development. In examining this relationship, one point must be borne in mind. Although the stock of human capital is a very important determinant of the level of economic development it is only one of the important determinants. The subsequent analysis, however, examines only the role of human capital. It does not aim at providing a comprehensive explanation of the level of regional development in terms of all its major determinants and interdependences.

For examining the relationship between human capital stocks and the level of economic development, three district level indices of development were constructed. The first index was a nine indicator index of overall development of districts, incorporating general, rural as well as urban indicators. The indicators of development used for constructing this overall index were:

1. Percentage of non-primary workforce to total workforce.
2. Percentagee of urban population to total population.

Table 6 Statewise inter-district variability of human capital stocks per capita (rural plus urban segments)

	'Pure' labour (Illit.)	Just literate	Primary	Middle	Matric	Non-Tech. diploma	Tech. diploma above	Graduate &
	Coefficients of variation (percentage form)							
Andhra Pradesh	9.68	54.33	37.82	2.19	2.89	66.28	3.05	12.92
	X	II	IV	III	VII	VIII	X	IV
Assam	13.92	52.84	34.78	24.75	35.79	140.98	64.21	47.34
	IV	III	VI	XIV	XIII	I	XII	XIII
Bihar	6.26	17.99	24.16	28.67	44.15	59.88	78.34	62.42
	XIV	XIII	XI	XII	XI	IX	IX	XI
Gujarat	13.28	22.88	30.45	36.61	53.23	102.69	80.52	82.61
	VI	X	VIII	VII	VI	II	VIII	VII
Karnataka	11.93	50.56	41.98	42.17	44.41	93.78	88.12	80.13
	VII	V	I	II	X	IV	VII	VIII
Haryana	7.50	14.83	17.48	31.33	37.55	39.29	66.57	44.62
	XIII	XIV	XIV	XI	XII	XII	XI	XIV
Kerala	20.17	9.04	14.03	21.70	33.51	33.55	62.59	50.82
	I	XV	XV	XV	XIV	XIII	XIII	XII
Madhya Pradesh	8.94	46.25	32.08	38.83	63.16	101.08	141.79	86.66
	XI	VI	VII	V	III	III	I	VI

Maharashtra	13.53	24.75	28.38	34.79	73.34	82.44	96.67	113.21
	V	VIII	IX	VIII	VI	VI	IV	III
Orissa	10.55	59.91	36.51	32.58	48.64	35.25	57.91	72.29
	VIII	I	V	IX	IX	XI	XIV	IX
Punjab	10.04	32.38	40.10	25.03	29.93	29.18	36.04	36.82
	IX	VII	XIII	XV	XV	XV	XV	XV
Rajasthan	5.78	18.70	24.42	38.89	49.56	59.08	8.94	71.12
	XV	XII	X	IV	VIII	X	VI	X
Tamil Nadu	17.37	22.62	21.03	38.38	58.65	70.48	93.41	118.05
	II	XI	XIII	VI	IV	VII	V	II
Uttar Pradesh	8.24	52.29	39.53	32.47	56.15	91.31	24.98	111.03
	XII	IV	III	X	V	V	II	V
West Bengal	15.49	23.08	23.26	46.92	94.80	32.53	66.62	141.98
	III	IX	XII	I	I	IV	X	I

Note: Roman numerals indicate the rank of states within each column.

Table 7 Gender-wise inter-district variability of human capital stocks per-capita coefficients of variation (percentage form)

Sex	'Pure' labour (Illit.)	Just literate	Primary	Middle	Matric	Non-tech. diploma	Tech. diploma	Graduate & above	Post-graduate (Non-tech)	Post graduate (Tech.)
7(a): All-India picture (rural plus urban)										
Male	19.45	44.94	44.40	47.25	55.53	124.78	116.93	97.38		
Female	14.55	70.83	78.87	91.72	108.09	260.41	292.68	157.14		
7(b): All-India rural segment										
Male	17.90	53.24	50.92	48.62	50.76	131.49	164.22	59.35		
Female	12.01	93.44	96.34	119.85	160.42	306.51	480.03	193.02		
7(c): All-India urban segment										
Male	18.59	23.59	27.06	36.74	25.65	124.95	83.22	49.18	69.29	56.92
Female	16.59	25.71	39.61	49.79	46.27	250.28	265.53	72.38	120.45	92.12

3. Percentage of non-household industry workforce to total industrial workforce.
4. Agricultural productivity per hectare.
5. Percentage of irrigated to gross cultivated area.
6. Cropping intensity.
7. Road mileage per 100 sq km.
8. Literacy percentage.
9. Bank deposits per capita.

These indicators were aggregated in the form of the first principal component to yield an index of overall development, which shall be denoted by I_d.

The economic benefits of education have been studied in the literature utilising atleast three approaches, namely, "the correlation approach", the "residual approach" and the "return to education approach", according to the classification used by Bowen (1964). To these may be added approaches using input-output coefficients on the one hand (Tinbergene & Correa, 1962; Mathur, 1969) and production functions on the other (Giriliches, 1964; Chaudhry, 1968). In this section we shall draw upon the correlation method for throwing some light on the relationship between education and development although, as in most spheres where correlation approach is drawn upon, it does face the problem of disentangling the direction of causation. A cross-section of over three hundred district level observations put the correlation results statistically on quite a firm ground. The approach used in some parts of the works of Habison and Myers (1964), Besen (1968), Krueger (1968), Dhesi (1979) and Selowsky (1979), among others, also conforms broadly to this methodological category. However, the analysis in this section differs from these works in so far as it is much more disaggregative in terms of its educational categorisation. In what follows, correlations of the above mentioned index of overall development have been estimatd with various components of the district level (rural plus urban) human capital percapita and are presented in Table 8.

Three points emerge quite distinctly from a study of the first row of this table. First, the strength of this relationship rises progressively as one moves to higher orders of the human capital stock. While the value of correlation is +0.45 for the 'just literate' population, it rises to +0.83 in case of graduate level human capital stock. Secondly, in case of professional education, while the relationship is very feeble ($r = +0.10$) in case of non-technical diploma holders, it is very strong ($r = +0.61$) in case of

Table 8 Inter-district relationship of overall development and human capital stocks per-capita (combined rural and urban segments)

	Correlation Coefficients							
	'Pure' labour (Illit.)	Just lit.	Primary	Middle	Matric	Non-tech. diploma	Tech. diploma	Graduate diploma & above
Overall development index & total human capital stocks	−0.76***	+0.45***	+0.48***	+0.71***	+0.92***	+0.10*	+0.61***	0.83***
Overall development index & productively employed human capital stocks	−0.60***	+0.15**	+0.32***	+0.64***	+0.89***	+0.12***	+0.61***	+0.83**

***, **, * indicate statistical significance at 0.01, 0.05 and 0.10 levels respectively.

technical diploma holders. These results reaffirm the significance of providing middle level technical education for attaining higher levels of development while also showing that the role of middle level non-technical professional education in contributing to higher levels of development is not that substantial.

The third point, which is revealed by a comparison of rows 1 and 2 of Table 8, is of considerable significance. It may be observed that in case of lower order components of human capital, viz., 'just literate', primary qualified and middle qualified, the correlation of the "productively employed" human capital is much less than the correlation of total human capital stocks of these categories to the level of development. This appears to be a strong indicator or positive external benefits of education at lower levels. It shows that even those members of population who acquire education but do not actively participatee in formal economic activity do play a role in contributing to raising the levels of devélopment. The channel of influence operating through the role of educated housewives in imparting family education and inculcating appropriate norms of work and behaviour patterns has already been pointed out. However, two points need to be noticed in this context. First, the magnitude of this external benefit, as reflected in the gap between correlation coefficient of economic development with total human capital and with "productively employed" human capital goes on declining as one moves to higher order human capital components. In case of professional education this gap, which may be called the "external benefit" gap, does not exist for the combined rural and urban segments. On the other hand, the external benefits of education emerge to be the highest for primary and middle level education. Secondly, although the external benefits of education as measured by this gap go on declining towards higher levels of education, relationship of human capital stocks to development is stronger for the more qualified components of human capital stock. If one puts the above two results together, it appears that whereas primary and middle level education plays an important role in disseminating over wide front an environment conducive to development, education at higher stages is more directly relevant for attaining higher levels of development. Thus from the point of view of educational planning, the emphasis on branches of the higher education system cannot be relegated to a lower order of priority than at the lower level.

At the next stage, the relationship of development and human capital stocks was estimated separately for rural and urban segments in order to observe differences, if any, between the nature of this relationship in the two segments. For this purpose separate indices of rural and urban development were prepared using only a very limited number of variables. The rural index is based on three indicators out of the earlier nine which are specifically related to agriculture, namely, (i) productivity per hectare, (ii) cropping intensity, and (iii) percentage of cultivated area which is irrigated. These were composited in the form of the first principal component to obtain a simple composite index of rural agricultural development. The urban industrial index was based on (i) proportion of urban population to total population of each district, (ii) proportion of non-primary sector workforce to total workforce within urban segment of each district, (iii) proportion of non-household industry workforce to household plus non-household industrial workforce within urban segment of each district. These three indicators were again composited in the form of the first principal component, as in case of the earlier indices.

The relationship of respective indices to rural and urban stocks of human capital is presenteed in Table 9, parts a and b. While the broad pattern of results for both rural and urban segments is identical to that elucidated above for the combined rural and urban segments, it may be observed that the strength of correlations for districts considered as a whole is greater than for relationships when rural and urban segments are considered separately. This could partly be a consequence of the fact that only a limited number of variables have been used for constructing the rural and urban indices whereas the overall index is more broad based and representative of the development phenomenon. Further, in the urban segment, the correlations of development with "productively employed" human capital stocks emerge to be lower than correlations with total human capital stocks for higher order human capital in addition to that in case of human capital stocks up to the matric level. This points to the existence of external benefits of higher education as well, in case of the urban segment, which was not apparent from results in case of the combined rural and urban segments. However, the gap between the two sets of correlations is smaller than in case of results for the combined rural and urban segments.

VII. Valuation of Human Capital

The preceding analysis was all based on components of human capital measured in physical units. This has some advantages, in so far as one can look at each element of the human capital stock separately. However, there are dimensions of the theme for which valuation becomes un-

Table 9 (a) Inter-district relation of rural development, I_d (R) and human capital stocks

	Correlation Coefficients 'Pure' labour illit.	Just lit	Primary	Middle	Matriculate	Non-tech. diploma	Tech. diploma	Graduate & above	Post-graduate (Non-tech.)	Post-graduate (Tech.)
$I_d(R)$ and total human capital stocks	− 0.22***	− 0.05	+0.17**	+ 0.26***	+ 0.47***	+ 0.12*	+ 0.17***	+ 0.29***		
$I_d(R)$ and productively	— 0.39**	− 0.12*	+ 0.12*	+ 3.24	+ 0.45***	+ 0.09*	+ 0.16***	+ 0.19***		

Table 9 (b) Relations of urban development I_d (R) and human capital stocks

	'Pure' labour illit.	Just lit	Primary	Middle	Matriculate	Non-tech. diploma	Tech. diploma	Graduate & above	Post-graduate (Non-tech.)	Post-graduate (Tech.)
$I_d(V)$ and total human capital stock	− 0.43***	− 0.02	+ 0.27***	+ 0.22***	+ 0.51***	+ 0.14***	+ 0.30***	+ 0.42***	+ 0.15**	+ 0.35***
$I_d(V)$ and productively employed human capital stocks	− 0.35***	− 0.24***	+ 0.16**	+ 0.23***	+ 0.49***	+ 0.12*	+ 0.29***	+ 0.35***	+ 0.08	+0.29***

Asterisks have the same connotation as in Table 9.

avoidable. For example, in order to know the relative position of a state or district in terms of its total human capital stock rather than in terms of its several components, aggregation has to be done on the basis of value of each component of human capital. Secondly, in order to assess the collective influence of human capital stocks on the level of development through a multiple regression model, some components would have to be aggregated, which again necessitates valuation. This is all the more essential since various components of the human capital stock are not independent of one another. The educational system, through which the human capital stocks are generated, is an interdependent system in which outputs of one stage become inputs in the form of students at the next stage. Thus, the basic stages of educational process which occur in direct succession can better be considered together for multiple regression analysis. Components of human capital stock emanating from such successive stages would have to be aggregated through valuation.

For valuation of different components of the human capital stock, the estimates used here are based on an approach used by the present author (1969) for his doctoral research at the London School of Economics about two decades back. That work drew upon resemblance of the educational system to an input-output system in which each stage of education can be depicted as a process in which the basic inputs are students of a lower stage, teachers who themselves are output of some higher stage of education, and other material inputs obtained from various sectors of the economy engaged in productive activities. Outputs of educational process are students, who get qualified to one stage higher level and hence become a part of the human capital, the order of their 'human capital' depending upon the stage of the educational system at which they qualify. Teachers at different stages get carried over from input to the output side as a "human capital good", and in terms of input-output matrices, are treated in the same way as a physical capital good. The educational system was linked on to processes of productive activities in the form of a von-Neumann input-output system (1945). Approach to educational planning along these lines was initially formulated by Gautam Mathur (1963, 1970).

A solution of the equation system for balanced expansion within such a model consists of two parts. The equations of the 'physical system' yield process intensities needed within the productive activities and educational system for its steady expansion. These indicate the optimum distribution of resources among different productive and educational processes. It is the price equations of the system which yield value of each type of 'human capital' incorporated in the model. In a general form, these price equations can be expressed as:

$$P \left[\sum_{i=1}^{i=n} a_{ij} . (\pi_i) + \sum_{k=1}^{k=m} g_{kj} . (\pi_k) \right]$$

$$= \sum_{i=1}^{i=n} b_{ij} (\pi_i) + \sum_{k=1}^{k=m} h_{kj} . (\pi_k) \qquad (4)$$

where a_{ij} and b_{ij} indicate input and output coefficients respectively of technology matrix of the productive sector; $g_{k,j}$ and $h_{k,j}$ indicate input and output coefficients respectively of technology matrix of the educational system;

$i = 1, 2, ..., n$ are material inputs
$k = 1, 2, ..., m$ are human capital inputs
$j = 1, 2, ..., n$ are productive processes
$j = (n + 1), (n + 2), ..., (n + m)$ are educational process
π_i are prices of material inputs
π_k are prices of human capital inputs
p is the uniform profit factor for each j

Value of human capital inputs derived in this fashion depicts the price at which different types of educated and trained manpower used in each productive and educational activity ought to be valued so as to yield a uniform rate of surplus in each activity. This method of valuation thus estimates the shadow price of human capital inputs which would prevail in a planned economy simulation of perfectly competitive conditions. It may be noted that this mode of valuation of human capital inputs therefore differs from that underlying the rate of return to education approach, a lucid discussion of which may be found in Becker (1975) and Blaug (1976).

An application of the above type of interlinked educational-cum-economic planning model to the Indian economy was attempted using educated manpower data from the 1961 Population Census, input-output data from the Allan Manne-Ashok Rudra paper (1965) which formed the basis of the Fourth Five Year Plan model, education input-output matrix derived on basis of the Report of Kothari Commission on Education (1966), and statistical publications of the Ministry of Education (1961). In order to interlink the 1961 Population Census categorisation of educated manpower with the input-output matrix of the educational system, a model of the educational system was cast to approximate as nearly as possible the educational system prevalent in India. Based on certain simplifying assumptions, in all 26 educational processes and 8 productive activities were used to yield a combined input-output matrix of the educational-cum-economic system of India. Applying the set of price equations represented by the equation system (4) to the derived educational-cum-economic technology matrix of India, 'shadow price' of each type of educated manpower was obtained. As in case of the basic von Neumann model, these prices are relative prices, considering the price of basic consumer good, which was taken to be food produced in the agricultural sector, as the numeraire. These prices, which reflect the value of each component of human capital for nineteen sixties, were of the order given below:

π (literate) = 168.8 5(a)
π (primary) = 468.6 5(b)
π (middle) = 1078.6 5(c)
π (matriculate) = 1383.6 5(d)
π (N.T.diploma) = 1737.9 5(e)
π (T. diploma) = 1988.3 5(f)
π (graduates) = 3332.6 5(g)
π (post grad. NT) = 3444.3 5(h)
π (post grad. tech.) = 6130.7 5(i)

The concept of value of 'human capital' incorporated in the above model differs from the concept generally utilised in three respects. First, the above prices are derived in an interdependent fashion and depend upon the technological interlinkages existing within the economy as well as upon the wage/teacher salary level, scholarship rates and average teacher-student ratios at different stages of the education system. Secondly, the total costs of education at each stage depend not only upon the elements enumerated above but also upon the value of 'human capital' of teachers as well as students in each educational process, all derived in an interdependent manner. Thirdly, since the conceptual basis of this method of estimation is different from that used in the Rate of Return approach, the element of earnings foregone which forms an important component of the value of human capital in the Rate of Return studies, does not figure in this approach.

VIII. Value of Human Capital Stock in India: Its Regional Dimension

The subsequent analysis in this paper is based on value of human capital derived on the basis of prices given by equations 5(a) to 5(i). These prices are based on data pertaining to nineteen sixties but have been used for valuation of human capital as existing in 1971. Since these prices depict only the relative levels, it has been assumed that the relative magnitudes would not have changed markedly by 1971. First we may look at the estimates of aggregate value of human capital per-capita and aggregate value of "productively utilised" human capital per-capita as existing in the rural and urban segments of different states. These estimates have been derived from the following equations:

$$VH_{j}(s) = \Sigma_{k}\pi_{k}\left\{\frac{H_{kj}(s)}{P_{g}(s)}\right\} \tag{6}$$

$$VW_{j}(s) = \Sigma_{k}\pi_{k}\left\{\frac{W_{kj}(s)}{P_{j}(s)}\right\} \tag{7}$$

where $VH_{j}(s)$ represents value of total human capital in segment (s) of district (j);

$VW_{j}(s)$ represents value of productively employed human capital per capita in segment (s) of district (j);

π_{k} is the estimated value of component k of the human capital; other symbols have the same connotation as in equations (1) and (2).

Since there are seven components of human capital for which information is available in the rural segment as against nine in the urban segment, in case of the rural category k = 'graduates and above', the price is taken to be the average of prices of categories k = graduates, k = post-graduate non-technical and k = post-graduate technical.

The estimates for the rural segment are given in Table 10, while those for the urban segment are given in Table 11. The value of total human capital per-capita as well as value of "productively employed" human capital per-capita are both given in these tables. The highest value of human capital per capita in the rural segment occurs in case of Kerala, as might have been anticipated on the basis of discussion in section III. But in urban segment the first rank goes to Assam, followed by that of Tamil Nadu, Punjab and Karnataka. At the other end of the spectrum lies Rajasthan, both in rural and urban segments.

Table 10 Statewise value of human capital per-capita and its inter-district variability (rural segment)

State	Value of total human capital per capita	Coefficient of variation	Value of 'productvity employed' H. cap. per capita	Coeffcient of variation
Andhra Pradesh	10672	34.54	5687	28.38
	XIII	IV	XIII	IV
Assam	15895	28.23	8234	40.22
	VI	X	III	I
Bihar	10934	25.52	5540	21.17
	XII	XI	X	XIII
Gujarat	10944	30.26	55453	35.33
	XI	I	IX	II
Karnataka	16140	35.36	7853	28.63
	IV	III	V	III
Haryana	12426	24.04	5546	21.54
	IX	XII	XI	XI
Kerala	33424	20.85	12307	17.41
	I	XV	I	XV
Madhya Pradeesh	8404	29.53	4787	26.76
	XIV	VII	XIV	VII
Maharashtra	16039	21.11	8063	21.76
	V	XIV	IV	X
Orissa	12843	35.70	6661	27.93
	VIII	II	VIII	V
Punjab	16556	30.80	7063	20.61
	III	VI	VI	IX
Rajasthan	6034	28.46	3342	25.64
	XVI	IX	XV	VIII
Tamil Nadu	16801	31.73	8250	21.52
	II	V	II	XII
Uttar Pradesh	11175	28.73	5619	27.58
	X	VIII	XII	VI
West Bengal	13980	23.17	6664	21.00
	VII	XIII	VII	XIV

Roman numerals indicate the rank of states within each column.

It may be mentioned that all state level per-capita figures in this and other state level tables have been derived as simple average of district level figures. Constraints of time have not permitted weighted averages to be estimated for the present paper.

Table 11 Statewise value of human capital per-capita and its inter-district variability (urban segment)

State	Value of total human capital per capita	Coefficient of variation	Value of 'productvity employed' H. cap. per capita	Coeffcient of variation
Andhra Pradesh	31844	16.61	15232	15.07
	XIV	VIII	XIV	XIII
Assam	49297	11.53	23223	17.11
	I	XV	I	XI
Bihar	37624	17.27	17257	17.95
	IX	VII	X	VIII
Gujarat	35992	22.09	16827	32.02
	XI	III	XI	II
Karnataka	40160	18.49	17284	18.08
	VII	V	IX	VII
Haryana	41278	16.11	18837	14.21
	VI	X	IV	XIV
Kerala	48133	17.68	18818	18.68
	II	VI	V	VI
Madhya Pradesh	34708	12.99	16400	16.20
	XIII	XIV	XIII	XII
Maharashtra	41666	15.70	18687	20.87
	V	XI	VII	V
Orissa	36776	20.42	18695	20.89
	X	IV	VI	IV
Punjab	44712	16.15	20918	17.35
	IC	IX	II.	X
Rajasthan	29958	22.92	14299	24.45
	XV	II	XV	III
Tamil Nadu	39677	13.14	18124	10.96
	VIII	XIII	VIII	XV
Uttar Pradesh	35292	27.11	16440	33.19
	XII	I	XII	I
West Bengal	46664	13.42	19913	17.55
	III	XII	III	IX

Roman numerals indicate the rank of states within each column.

Tables 10 and 11 also give coefficients of variation for inter-district variation in the value of human capital per-capita within each state in the rural and urban segments.

It is of interest to enquire whether there is a tendency for the human capital rich states to be more egalitarian across districts as well in terms of their value of human capital per-capita and vice versa. If so, this would indicate a spatial trickle-down phenomenon of the type envisaged by Hirschman (1958), in the sphere of educational development. In order to examine this issue, simple correlations were estimated between statewise value of human capital per-capita and their intra-state coefficients of variation. Table 12 gives these correlations separately for the rural and urban segments, as well as for value of total human capital per-capita and value of "productively employed" human capital per-capita. These coefficients are all negative but somewhat higher in case of the urban segment. However, the negative coefficient is statistically significant (at 0.05 level) only in case of the urban segment. One can therefore assert that higher value of human capital stock per-capita does show a tendency to be accompanied by its more equitable spatial distribution as well in the urban segment. However, this tendency is not very strong and statistically significant in the rural segment. Moreover, the extent of intra-state disparity in the aggregate human capital per-capita is invariably higher in the rural segment of each state compared to its urban segment. Thus rural educational disparities appear to be more than the urban ones, demanding greater care in spatial planning of educational development of rural areas.

Table 12 Relationship of statewise value of human capital and intra-state human capital variability

The Correlation Matrix

Value of human capital stocks per capita	Coefficients of variation			
	Total human capital stocks		Productivity employed human capital stocks	
	Rural	Urban	Rural	Urban
Total stocks				
Rural	– 0.39	–	–	–
Urban	–	– 0.54**	–	–
Productively employed stocks				
Rural	–	–	– 0.23	–
Urban	–	–	–	– 0.32

** indicates significance at 0.05 level.

Before closing this section, it may be of interest to look at district-level picture in terms of the value of human capital per-capita and to identify the top ranking as well as the most backward districts in this respect. For this purposee Table 13 enumerates the top twenty and bottom ten districts in terms of their value of human capital per-capita. In the top twenty category, when rural and urban segments are considered together, apart

Table 13 Ranking of districts in terms of value of human capital per capita (VH)

Top twenty	Composite districts		Rural segment	
ranks	Name of district	VH	Name of district	VH
1.	Calcutta (WB)	68501	Alleppey (Kerala)	42714
2.	Bombay (Mah.)	59013	Quilon (Kerala)	40233
3.	Madras (TN)	53380	Kottayam (Kerala)	37211
4.	Ernakulam (Kerala)	41745	Trivandrum (Kerala)	35269
5.	Ernakulam (Kerala)	41745	Trivandrum (Kerala)	35269
6.	Trivandrum (Kerala)	41725	Trichur (Kerala)	35037
7.	Kottayam (Kerala)	41457	Kanyakumari (TN)	30210
8.	Quilon (Kerala)	41184	Cannanore (Kerala)	28891
9.	Bangalore (Karnataka)	39817	Kozhikode (Kerala)	28733
10.	Dehradun (UP)	39052	Coorg (Karnataka)	27353
11.	Trichur (Kerala)	37251	Palghat (Kerala)	25133
12.	Nagpur (Mah.)	34766	Mizoram	24006
13.	Hyderabad (AP)	34226	The Nilgiris (Karnataka)	23969
14.	Indore (MP)	33780	Shimoga (Karnataka)	23897
15.	Lucknow (UP)	33628	Hoshiarpur (Punjab)	23841
16.	Ahmedabad (Gujarat)	33598	North Canara (Karnataka)	23116
17.	Pune (Mah.)	33581	Akola (Mah.)	2278
18.	Kanyakumari (TN)	32795	Ropar (Punjab)	22101
19.	Howrah (W.B.)	31420	Sibsagar (Assam)	21803
20.	Ludhiana (Punjab)	31314	Mallapuram (Kerala)	21681
Bottom ten ranks				
1.	Jalore (Rajasthan)	4322	Jhabua (MP)	3255
2.	Barmer (Rajasthan)	4997	Barmer (Rajasthan)	3354
3.	Bastar (MP)	5348	Jalore (Rajasthan)	3451
4.	Jhabua (MP)	5492	Jaisalmer (Rajasthan)	3860
5.	Banswara (Rajasthan)	6017	Bastar (MP)	4064
6.	Surguja (MP)	6479	Banswara (Rajasthan)	1306
7.	The Dangs (Gujarat)	6581	Sirohi (Rajasthan)	4314
8.	Banaskantha (Gujarat)	6397	Surguja (MP)	4574
9.	Sidhi (UP)	6650	Jodhpur (Rajasthan)	4590
10.	Dungarpur (Rajasthan)	6755	Banaskantha (Gujarat)	4694

from the three top ranking metropolitan districts the largest number of districts are from Kerala. In addition, one or two districts each from a large number of states, namely, Karnatak, Gujarat, Maharashtra, Andhra Pradesh, UP, MP, West Bengal, Tamil Nadu and Punjab fall in this category. When one looks at the rural segment, the majority of districts in the top twenty category are different from those when one looks at districts as composite units except the districts from Kerala which now occupy the first three ranks as well. Unlike the top twenty list of composite districts which belong to widely dispersed states, within the rural segment the top twenty districts come from five states, namely, Kerala, Karnatak, Punjab, Maharashtra, Assam and Tamil Nadu. In contrast, the districts in the lowest ten categories all come only from three states, namely Rajasthan, MP, Gujarat.

IX. The Value of Human Capital in Relation to Development of the Rural and Urban Segments

Finally, we try to assess the collective influence of human capital variables on the level of development through multiple regression analysis. For this purpose, it is imperative to club together some of the very closely interrelated human capital categories and to examine the influence of three or four main categories of human capital on the level of development. Having already obtained a set of prices for human capital, aggregation into a limited number of categories is possible on the basis of the price vector given above. The main aggregation has been done in case of the human capital components corresponding to four stages of school education, viz. 'just literate', primary qualified, middle qualified and matriculates. This has enabled elimination of the area containing a substantial degree of inter-variable correlation, namely the primary qualified, the middle qualified and matriculate level stocks of human capital. The inter-correlation betweeen the former two variables and the latter two variables was the highest within the inter-correlation matrix, being of the order of nearly + 0.70. In case of the urban segment, since the data are available for a larger number of categories, two further aggregations have been undertaken, viz. technical diploma holders with technical postgraduate degree holders and non-technical diploma holders with postgraduate non-technical degree holders.

The following human capital variables have thus been used as determinants for explaining the level of development:

Variables	Urban segment	Rural segment
X_2	Aggregate value of human capital per-capita comprising "just literate", primary, middle and matriculates	Same as for the urban segment
X_3	Aggregate value of human capital per-capita comprising non-technical diploma holders and postgraduate non-technical degree holders	Value of human capital per-capita for non-technical diploma holders
X_4	Aggregate value of human capital per-capita comprising technical diploma holders and postgraduate technical degree holders	Value of human capital per-capita for technical diploma holders
X_5	Value of human capital per-capita for graduates	Value of human capital per-capita for the category "graduates and above"
X_{11}	"Pure" labour	"Pure" labour

A word of explanation is needed about the last determinant X_{11}, which depicts "pure" labour as distinct from other categories which all incorporate an element of capital formation. This represents non-educated labour, measured again in per-capita terms as in case of all other variables, i.e. as ratio of illiterate population to total population. This ratio, however, has been multiplied by 100, as in case of other per-capita variables as well, in order to avoid getting all values of the variable in decimal figures less than one.

The collective influence of the above variables has been assessed separately for the rural and urban segments, using the index of development of the respective segments as the dependent variable. Since the rural index as used here is based on agricultural indicators, it is essentially an index of agricultural development. The urban index is basically an index of urban industrial development. The rural and urban regressions by and large reflect the influence of human capital on agricultural and industrial development respectively. Greater refinement could be achieved by incorporating a larger number of indicators in the sectoral indices. However, data problems and resources limitations have prevented such as extended exercise from being undertaken in this paper. Collective influence of these variables has also been assessed on the district level general index of development (I_d).

The results of these regression exercises are given by equation 8 for overally economic development, by equation 9 for the rural segment development and by equation 10 for the urban segment development. The main points which emerge from a study of these equations may now be elucidated below:

(i) The overall explanatory power of human capital variables and "pure" labour, as reflected in the adjusted coefficient of determination, is much higher with reference to overall economic development embracing both rural and urban segments ($R^{-2} = 0.85$), than their explanatory power with reference to the index of rural development or with reference to the index of urban development. The fact that R^{-2} is much higher for overall development of rural and urban segments considered together can be interpreted to mean that human capital development has substantial external benefits which go to raise the overall level of development much more than for specific segments considered separately. The lower value of R_t^{-2} in case of segmentwise indices may also, however, partly be a consequence of the use of only a limited number of indicators in the construction of rural and urban indices.

Overall Economic Development:

$$\begin{aligned}
I_d = -4.21 &- 6.23^{**} X_{11} + 0.019^{***} . x_2 \\
&\quad (2.43) \qquad\quad (4.04) \\
&- 0.168^{***} x_3 + 0.0071\, x_4 + 0.096^{***} x_5 \text{ cu} \\
R^{-2} &= 0.85^{***}
\end{aligned} \tag{8}$$

Rural Segment Development:

$$\begin{aligned}
I_d(R) = -9.99 &+ 0.09002^{***} x_{11} + 0.00022^{***} x_2 \\
&\qquad (3.11) \qquad\qquad (4.05) \\
&- \ 0.00018\, x_3 - 0.00037\, x_4 \\
&\qquad (0.34) \qquad (0.30) \\
&+ 0.00087^{**} x_5 \\
&\qquad (2.64) \qquad R^{-2} = 0.13^{**}
\end{aligned} \tag{9}$$

Urban Segment Development:

$$\begin{aligned}
I_d(u) = -1.97 &- 0.0153\, x\, 11 \\
&\quad (0.56) \\
&+ 0.00005\, x_2 - 0.00015\, x_3 \\
&\quad (1.55) \qquad (1.19) \\
&+ 0.00013^{*} x_4 + 0.00042^{***} \\
&\quad (1.65) \qquad (3.68) \\
&\mathrm{R}^{-2} = 0.27^{***}
\end{aligned} \tag{10}$$

$I_d(R)$ and $I_d(u)$ are indices of rural and urban development respectively.

(ii) The explanatory power of human capital variables with reference to the index of urban industrial development ($R^{-2} = 0.27$***) is statistically significant at 0.01 level and is substantially higher than the explanatory power of human capital variables with reference to the index of rural development, which is entirely based on indicators of agricultural development ($R^{-2} = 0.126$*). This indicates a much greater role of human capital variables in explaining urban industrial development than in explaining agricultural development.

(iii) The regression coefficients of human capital educated upto the school level (x_2) and of graduate level human capital (x_5) are both positive and statistically significant at a high level in case of all regression equations. However, the relative degree of statistical significance is much greater in case of graduate level human capital in the urban segment, but within the rural segment it is greater in case of school level human capital. In terms of the size of regression coefficients of these two variables, the regression coefficient of graduate level human capital is higher than that of the school level human capital in case of both rural and urban segments. However, the relative size of the graduate level coefficient in relation to the school level human capital coefficent is much greater in the urban industrial sector (about eight times) than in the rural agricultural sector (about four times). Thus it does emerge that whereas the role of graduate level human capital is stronger in the urban segment, in the rural segment the role of school level human capital is relatively more prominent.

(iv) The regression coefficient of professionally educated non-technical human capital (X_3) is negative but statistically insignificant in both rural and urban segments. The coefficient of professional human capital with technical education (X_4) is positive and significant at 0.10 level in case of urban industrial development but in the rural segment it is statistically insignificant. Thus, the positive role of human capital with technical professional education in promoting development does not emerge that clearly from regression analysis as it did in case of simple correlations (Section VI).

(v) The regression coefficient of "pure" labour (uneducated labour) is positive and statistically significant in the rural segment but in the urban segment it is negative, though statistically insignificant. In the combined rural and urban segments regression, its coefficient is negative and that also at 0.05 level of statistical significance.

One point must be kept in mind while interpreting the above regression results and, in fact, also the earlier correlation results. In the inter-temporal sequence of development for the country as a whole attainment of adequate human capital stocks through provision of appropriate educational facilities can be considered to be one of the necessary preconditions of economic development. However, inter-spatial relationship between human capital stocks and regional development is likely to contain an element of reverse causation as well, since areas which become economically more developed would attract stream of educated migrants, thus tending to push up their stocks of human capital, and perhaps more so that of higher order components of human capital. Since this in turn provides a fillip to development of areas attracting human capital flows, the inter-spatial correlations could more appropriately be interpreted as measures of the extent of cumulative causation rather than one sided causation only from the side of human capital to economic development. An extension of the approach used in this paper could incorporate such interactions by drawing upon a simultaneous equation model.

It may be mentioned that a multiple regression model for assessing the impact of education on development has also been formulated by Saxena (1989), using inter-spatial data. That paper is based on state level data and uses a somewhat different set of educated manpower categories than those used here. However, one common result of this paper and that one may be pointed out. Saxena's paper also reports that regression coefficient of manpower with education upto degree level is quite significant.

X. Policy Implications

We may round up the paper by bringing together some of the policy implications of the above analysis. Two types of policy implications can be derived from the preceding analysis. First are those which flow from a study of disparities in the structure and spatial spread of human capital across districts of India. The second are those which are related to analysis of the relationship between human capital variables and the levels of development.

Within the first set of policy implications, the important point to note is that by looking only at variations in literacy percentage, one can gloss over differences in disparities in various components of the human capital stock. If one considers the disaggregated picture, the inter-district disparity is found to be much greater in terms of higher order components of the human capital stock. It cannot be argued that the spatial spread of educational facilities should be such as to bring about complete equality in inter-district disparity for all levels of human capital. Highly educated components of human capital stock are bound to be more unevenly distributed than lower and middle level stocks of human capital. But some of the more glaring variations need policy measures to reduce these. There are four such glaring variations which need to be taken care of specifically. These are:

(i) Inter-district disparity in terms of technical diploma level of human capital is far more than even for those with postgraduate level degrees. This points to need for effective policies to promote a wider dissemination of facilities for middle level technical education, geared specifically to local level job markets. Some guidelines for district level vocational education development were laid out in a detailed report by the present author, Moonis Raza and G.S. Bhalla (1979) which was based on a research project sponsored by the NCERT in the seventies. What is needed is more effective implementation of the programme for vocational education and its more appropriate linkage to productive activities at the micro-level.

(ii) Not only is the rural human capital per-capita lower than in the urban segment, which would not be contrary to expectations, but inter-district disparity within the rural segment is much greater than within the urban segment for most components of human capital. It is quite clear that there is greater need to reduce inter-spatial disparity in educational facilities within the rural segment relatively to that within the urban segment.

(iii) Inter-district disparities in human capital stocks are particularly sharp within Andhra Pradesh, Madhya Pradesh and UP. This demands specific policy attention in case of these states for a more even spatial spread of educational facilities.

(iv) Not only are human capital stocks per-capita lower in case of the female component, but inter-district disparity in these stocks is much higher than for males, particularly in case of middle level professional-education. There is thus need to pay specific attention to improvement in the access of women to education, particularly job oriented professional education at the middle level, in the educationally backward areas.

We may now turn to policy implications which can be derived from a study of relationship between human capital per-capita and the level of development. For the purpose of detailed planning of education at different stages, education of different forms and for allocation of resources to these vis-a-vis sectors of production activity in rest of the economy, the appropriate methodology has to draw upon an integrated input-output model of the educational and productive sectors of the economy of the type drawn upon in section VII for deriving valuation of human capital. The dual counterpart of the price equations, that is equations of the physical system, would indicate appropriate intra-sectoral allocation of resources for educational expansion. This is essential in view of the fact that within the educational system successive stages of education are closely interlinked to one another and each of the terminal stages should be inter-linked and planned in relation to:

(a) economic activities in the productive system. This is the basis of manpower planning approach to educational development;
(b) in relation to what may be called "consumption demand for education" for meeting aspirations of population "seeking education for the sake of education" and not necessarily for full time pursuit of avocations in organised or informal segments of productive activity; and
(c) in relation to certain exogenously laid down policy objectives like compulsory education up to a certain specified stage, propagation of adult literacy programme, or making extra allocation of resources to raise the educational attainment of some socially deprived sections of the population.

Therefore, within this broad framework for taking detailed educational planning decisions, what is the role of statistical relationships we examined in this paper and what sort of guidelines can they offer. Correlation and multiple regression analysis of the type attempted here can provide additional supportive evidence regarding the relative economic significance of some of the broad macro-level categories of human capital since it is based on a very wide cross-section of over three hundred district level observations. The desirability of such a cross-sectional study as a plank of educational planning, in addition to that based on input-output relationships, arises on account of the fact that all educational activity does not go to meet purely the needs of productive sectors of the economy. A good part of education has to cater to what in preceding paragraphs was brought within the umbrella of needs of type (b) and (c). That education of this type also does carry substantial external benefits was vividly evident from a comparison of correlations of development with "total" and "productively employed" stocks of human capital in Section VI.

It is in the above background that one has to view results of the earlier regression analysis. There are essentially three broad macro-level policy guidelines which follow from the correlation and regression analysis of sections VI and IX, namely:

(a) Within the rural sector, school level education has to be given greater emphasis than higher level education, as evident from regression coefficients of these variables in section IX. But within the school level education, correlations of section VI do not support the view that primary sector education is more conducive to development than the higher school level education. In terms of correlation with development, middle and matric level human capital are more closely related to the level of agricultural development as reflected in the rural index. This conclusion also finds support in the research work of Chaudhry (1979), who writes, "just literacy and lower primary education among cultivators... do not explain the diffusion of technology... mere literacy is not enough. Sustained rural education up to secondary school level is required."

(b) Within the urban segment, both correlation analysis of section VI and multiple regression analysis of section IX point to the need for relatively greater emphasis on education for training of graduate level human capital.

(c) Both correlation and multiple regression analysis reveal that human capital with non-technical education is poorly related to development, while that with technical education has much stronger relationship to development, which reaffirms the earlier remarks about vocational education and need for a till in emphasis towards job-oriented technical education.

Although remarks given above under (a) indicate greater significance of higher school level education for attainment of successively higher levels of development, the correlation analysis of section VI did also reveal the importance of primary and middle level education in terms of their strong external benefits. This does point to the importance of early achievement of universalisation of education atleast up to the primary level schooling.

Acknowledgement

There are two strands of analysis in this paper for which I have to make a different set of acknowledgements. First, as far as the district level data base of this paper goes, I owe a special word of thanks to thirty M. Phil level research students who over the past few years have assisted me in processing the data. Inspiration for going in for district level analysis came from suggestions made by Moonis Raza. The second strand of analysis flows from my doctoral dissertation at the London School of Economics about two decades back. For a work which draws upon one's doctoral research, my primary gratitude goes to my supervisors Mark Blaug, E.A. Kuska and Dipak Mazumdar, to whom I owe lot by way of research guidance as well as encouragement in development of ideas. Some of the important ideas in my doctoral dissertation and the present paper came from theoretical formulations of Gautam Mathur in this field which he initiated in early sixties. I am also grateful to G.K. Chaddha for his comments on this paper. Finally, analysis of district level data would have been impossible without the computer programming assistance of V. Murlidhar and Manoj Srivastava. I am deeply indebted to all the above.

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THREE

Planning for Minimisation of Regional Disparities in Educational Development

Sheel C. Nuna

The experience during the last four decades of planning has shown that educational development in its true character is neither homogeneous in regional spread nor neutral to social formations. It is noted that it has a strong bias in favour of areas with stable economic and infrastructural base and against backward regions of the country. Inspite of best planning efforts, regional disparities remain a matter of great social concern.

The question of regional disparities in educational development, however, remained a non-issue. It was assumed, as in the sphere of socio-economic development that with the expansion of the system, regional disparities will be eliminated. No special efforts were considered as necessary. Although, some attempts were made, they were really not from the view point of regional disparity. For example identification of nine educationally backward states was one such step. The massive expansion of schooling network was considered as a step towards 'equality of opportunity'. Probably it was forgotten that 'quality of opportunity' for unequals may not be a just policy in the context of providing social justice either in the context of disparate groups or disparate regions.

It has been noted that growth in education system is not accompanied by democratization of education. Glaring disparities between groups and between regions remain a matter of great social concern. 'Growth with justice' remains too high a planning objective. It is unfortunate that the question of regions in educational development has not been considered as a developmental aid but has been used to strain the already strained system. As a result distortions of its own kind have become the hallmark of educational scenario in India.

This paper is an attempt to develop a framework for planning intervention towards removal of regional disparities. The paper has four parts; the first part argues for a region based approach to educational development; the second part brings out the magnitude of regional disparities in educational development, the third part evaluates the consequence of expansion of primary schooling facilities on enrolment in rural India with a view to discern their interactional pattern required and the last part explores a framework for reduction of regional disparities in educational development.

The Concern

Regional disparities in educational development constitute one of the neglected areas in educational planning as well as in educational research. This neglect is not confined to India alone, but may be seen globally. This is felt more vigorously when examined in the context of other attributes of disparities such as male and female, rural and urban, scheduled and non-scheduled. Reason for this, although simple, indicate a particular bias in educational planning which emanate from policy and planning thrusts. Planning as it is called in education, has not seen the question of regional disparities except in terms of state level planning.

Education is always seen in the human context and therefore educational planners by ensuring greater access to schools for greater participation in the act of learning have failed to reach at the genesis of the problem. The disparities or inequities are always seen as reflection on human resources.

The experience in the area of reduction of inequities, however, indicate that despite efforts made in this direction, success has not been very impressive. One of the reasons for this is that the human population is organised spatially and many aspects of their deprivation stem from spatial organisation. This is particularly true for India where population distribution has a well defined pattern. The concept of 'unity in diversity' originated from this pattern.

The regional approach for educational development in India is called for various reasons as given below:

First, the educational development in India during the last two centuries has followed a well defined spatial pattern in consonance with the economic development. This process has been characterised as 'enclavisation of spurious modernisation.'[1]

Second, the planning process in independent India continues to be guided by the infirmities of colonial underdevelopment. As a result the areas which saw an early spread of education continue to maintain their tempo leaving backward region in the poor state of art.[2]

Third, the regional backwardness in India cuts across all forms of backwardness which to a large extent is coterminous with group deprivation.

Fourth, the group deprivation is a function of elements of space and is determined by the availability and exploitation of natural resource base.

Fifth, the demand for education is a function of the awareness generation in the regional polity in the wake of stimuli of change through processes of socio-economic development.

Sixth, the regional approach is important in the context of operating political processes promoting centrifugal forces which tend to threaten the national untiy.

Last, educational objectives such as universalisation of elementary education and eradication of illiteracy presupposes elimination of regional disparities.

This brings to the point where 'region' becomes important. Although, there are many formulation on definition of a region depending on the objectives, the following lines are significant in the context of education:

> The region originates from the hypothesis that there are social realities which have had, during the course of history, sufficient organisation and internal cohesion to constitute a people, i.e. 'an entity which tends to be long-lasting and specific'. However, this 'historical entity' is not always easily recognised, particularly when it does not manifest itself in the form of a specific geographical area with clearly defined boundaries and limits. This is obviously the case of very many minorities whose historical permanence is nonetheless assured, not to say explained, by their capacity to transmit — through formal or informal education — their specificity, their values, in short their civilisation from generation to generation. These minorities develop into regionalist movements, i.e. the historical entity becomes a regional consciousness, when two spatial elements coincide. First there is the emergence of a feeling of belonging, which takes the form of highly emotional concepts such as one's 'native land', 'home-country', 'birth-place'. It could be said that this sentiment is an expression of a desire to be united in a collective and common identity, manifested in proximity and neighbourliness. This feeling is allied to another, equally emotional, which tends to make a distinc-

> tion between neighbours and outsiders. The limits of this social and cultural entity do not necessarily coincide with any spatial limit nor with any precise and officially recognized border.[3]

The regional approach to educational planning necessitates the choice of spatial unit for analysis. It may be important to mention here that in the Indian case the states have been chosen as unit for planning in many spheres. This however, has serious limitations because of the heterogeneity of state itself. Although, it may be considered fit for democratic governance, the present strains in the country indicate a rethinking on this subject too. In developmental planning, however, it is most unsuited in a regional framework. For example how can one club Telangana, Coastal Andhra and Rayalseema in Andhra Pradesh or Konkan, Vidarbha, Khandesh and Marathwada in Maharashtra. The state based planning takes away the vital elements of diversity and therefore any planning exercise becomes of doubtful validity in a regional framework. For obvious reason, and rightly so, the emphasis from fifth plan onwards has shifted from state to district in the context of regional planning, its real operationalisation, still remains too high a claim.[4] Despite limitation of operationalisation, it may be argued that district as a unit of planning indicates a continuing process of history, society, economy and polity. It is at this level that the 'demand and supply' in planning endeavour interact to give shape to developmental thrusts.

The district acquires greater significance in the context of the recent emphais on strengthening education-development linkages. The aim of development planning of which planning for educational development is an integral part, is to improve the quality of life of the people. This requires coordinating educational endeavours with those in related socio-economic fields. Education is neither a derived parameter which is essentially determined by exogenous forces, nor is it an isolated sprining and restricted to the individual psyche. It is intertwined in socio-economic development with every fibre of its being. Table 1 supports this assumption.

It may be seen from Table 1 that at the higher levels of educational development, if literacy is considered its proxy, developmental indicators interact favourably. The position of Kottayam district is a case in hand.

Micro-level planning of education in the context of development planning as a whole calls for building up a disaggregated district level data base and developing analytical tools to probe into micro-level realities which more often than not, act as constraints on the process of development in general and educational development in particular. It may further be seen from Table 1 that planning will have to take a different form in two disparate situations. To make a supra district unit as the spatial basis for educational planning would take out the socio-economic content from the exercise.

Table 1 Some developmental parameters (1981)

Indicator	Highest in district	Lowest in district
Literacy	81.66 Kottayam in Kerala	7.73% East Kameng in Arunchal Pradesh
Female Literacy	79.13% Kottayam in Kerala	2.48% East Kameng in Arunchal Pradesh
% Married females in age-group 15-19	86.43% Sultanpur in UP	4.3% Kottayam in Kerala
Infant mortality rate	200 Phulbani in Orissa	36 Kottayam in Kerala
Crude birth rate	48.87% West Khasi Hills in Meghalaya	22.59% Kottayam in Kerala

Regional Disparities

Having recognised the need for district based regional planning in education, it may be of significance to glance at the spectrum of disparities in regard to a few variables of educational development in relation to the country as a whole (Table 2).

It may be seen from Table 2 that the differences in the performance of district in regard to various indicators are so high that an analysis based on the district as a unit is obligatory if a meaningful exercise is to be undertaken to assess developmental performance.

Inter-district disparities become more glaring if total scenario of educational development is considered. Based on a composite index derived from 183 indices of educational development the picture as given in Table 3 emerges.[5]

Table 2 Selected indicators of educational development

Indicator	Highest	Lowest	All India
Literacy, 1981	81.66% (Kottayam in Kerala)	7.75% (East Kameng in Arunchal Pradesh)	36.23%
Female literacy, 1981	79.13% (Kottayam in Kerala	2.18% (East Kameng in Arunchal Pradesh)	24.82%
Non-scheduled female literacy, 1981	80.34% (Kottayam in Kerala)	4.57% (Barmer in Rajasthan)	29.43%
Population of habitations served by primary schools within 0.5 km, 1978	100% (Wokha in Nagaland) (Mahe in Pondicherry)	36.08% (Subansiri in Arunchal Pradesh)	61.47%
Age specific enrolment ratio, age-group 6-11 year rural boys, 1978	113.48%% (Hamirpur in Himachal Pradesh)	15.36% (Nagaur in Rajasthan)	76.27%
Age specific enrolment ratio, age-group 6-11 year rural girls, 1978	110.87% (Hamirpur in Himachal Pradesh)	5.85% (Nagaur in Rajasthan)	51.28%
Age specific enrolment ratio, age-group 11-14 year rural boys, 1978	101.02% (Rajkot in Gujarat)	18.39% (Jalpaiguri in West Bengal)	53.44%
Age specific enrolment ratio, age-group 11-14 years, rural girls, 1978	83.48% (Mokokchung in Nagaland)	1.48% (Barmer in Rajasthan)	29.29%

Table 3 Districts classified by levels of educational development (based on a composite India derived from 183 indices)

Levels	No. of districts
Very high	30
High	67
Moderate	154
Low	158
Very low	3 (Barmer, Lalitpur, Barabanki)

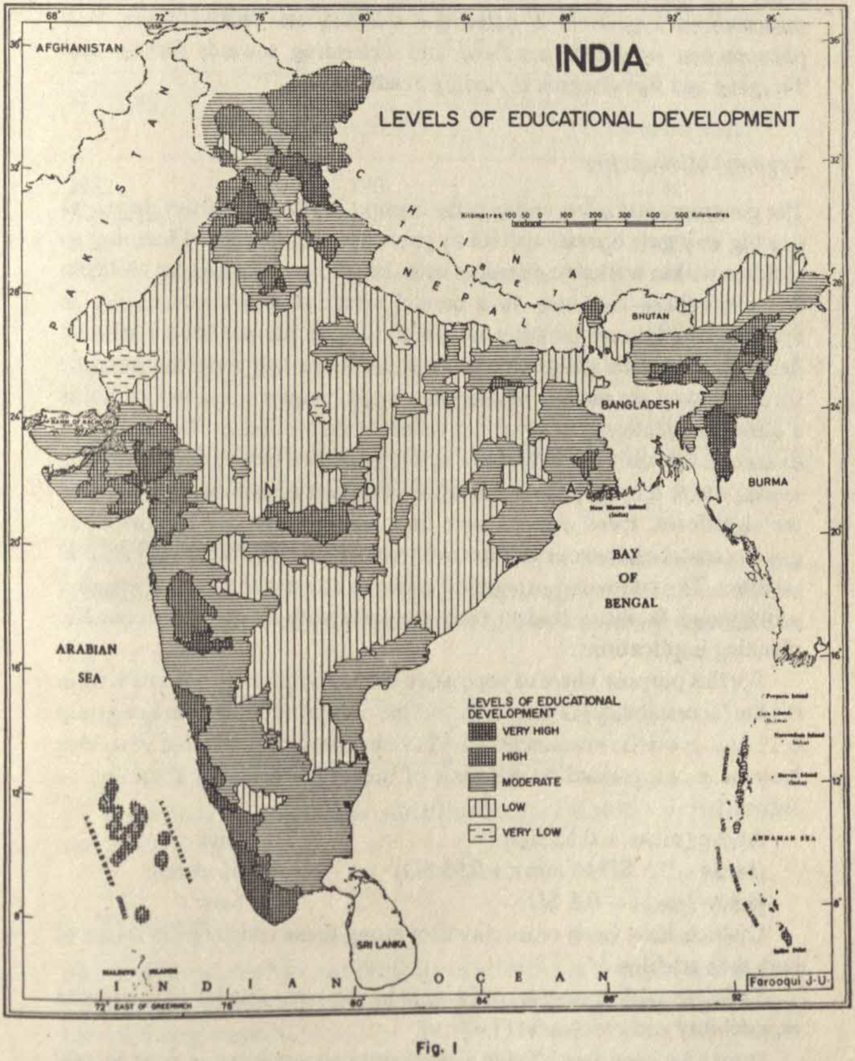

INDIA
LEVELS OF EDUCATIONAL DEVELOPMENT
AFGHANISTAN
PAKISTAN
CHINA
TIBET
NEPAL
BHUTAN
BANGLADESH
BURMA
INDIA
BAY OF BENGAL
ARABIAN SEA
SRI LANKA
INDIAN OCEAN
ANDAMAN SEA
LAKSHADWEEP SEA
LAKSHADWEEP ISLANDS
MALDIVE ISLANDS
ANDAMAN AND NICOBAR ISLANDS
New Moore Island (India)
Kilometres 100 50 0 100 200 300 400 500 Kilometres
LEVELS OF EDUCATIONAL DEVELOPMENT
VERY HIGH
HIGH
MODERATE
LOW
VERY LOW
68° 72° 76° 80° 84° 88° 92° 96°
36° 32° 28° 24° 20° 16° 12° 8°
72° EAST OF GREENWICH
Farooqui J·U·

Fig. I

The magnitude of inter-district disparities does not require any comment. The spatial pattern in levels of educational development are presented in Fig. I. It is noted that educational backwardness is a phenomenon of Hindi heartland and extending towards Orissa and Telagana and Rayalseema in Andhra Pradesh.

Regional Mismatches

The governmental intervention in the context of educational development in a big way gets operationalised by providing institutions of learning to children within walkable distances with the presumption that the children will avail these facilities. In a normal situation where constraints in availing educational facilities do not exist and parents have a natural desire to send their wards to schools, institutions will serve the purpose for which they are meant. Whether they really impart education, or not is a different question. However, provision of institutions within walkable distance is not uniform over space as it is governed by a variety of factors among which terrain, population distribution and availability of resources are significant. Even under scarce financial resources, it has been the governmental endeavour that the children are provided with educational facilities. The following paragraphs make an attempt to evaluate whether provision of facilities lead to desired results with a view to discuss the planning implications.

For this purpose share of population served by primary schools within 0.5 km (accessibility) in rural areas and enrolment of children in age group 6-11 (age specifiic enrolment ratio) have been used. Both these variables have been categorised on the basis of mean and standard deviation as follows:

Above (mean + 0.55 SD)	High
(Mean – 0.5 SD to mean + 0.55 SD)	Moderate
Below (mean – 0.5 SD)	Low

Districts have been cross classified along these categories in terms of both the variables.

To begin with it may be of interest to see inter-district disparities in accessibility and enrolment (Table 4).

It may be seen from Table 4 that while accessibility is poor in 100 districts, enrolment is poor in 121 districts. Similarly, districts with high accessibility exceeds district with high enrolment. One may generalise that intervention in terms of primary schools within walkable distance does not go along with progress of enrolment. This point is discussed in details in the following paragraphs.

Table 4 Number of districts classified by accessibility and enrolment at primary level

Category	No. of districts Accessibility	Enrolment (ASER)
High	150	131
Moderate	145	139
Low	100	125
No rural population	4	4
Total	399	399

A cross classification of districts in terms of accessibility and enrolment leads to recognise following three situations: i) Positive mismatches; ii) No mismatches; iii) Negative mismatches

i. Positive Mismatches

This indicates a situation where enrolment category of a district is better than its category in terms of accessibility. The following combinations may be noted:

1. Low accessibility and high enrolment
2. Moderate accessibility and high enrolment
3. Low accessibility and moderate enrolment

It may be noted that these situations indicate that the output exceeds the input.

ii. No Mismatches

This is a situation where the category of a district in terms of accessibility corresponds with its category in terms of enrolment. This may be seen in the following ways:

1. High accessibility and high enrolment
2. Moderate accessibility and moderate enrolment
3. Low accessibility and low enrolment

These situations indicate a balance between input and output.

iii. Negative Mismatches

Negative mismatches are indicative of a situation where efforts in terms of providing school facilities do not yield the corresponding results. This may be seen in the following situations:

1. High accessibility and moderate enrolment
2. Moderate accessibility and low enrolment
3. High accessibility and low enrolment

As may be seen it is the third situation where maximum wastage takes place.

Distribution of districts in different situations is indicated in Table 5.

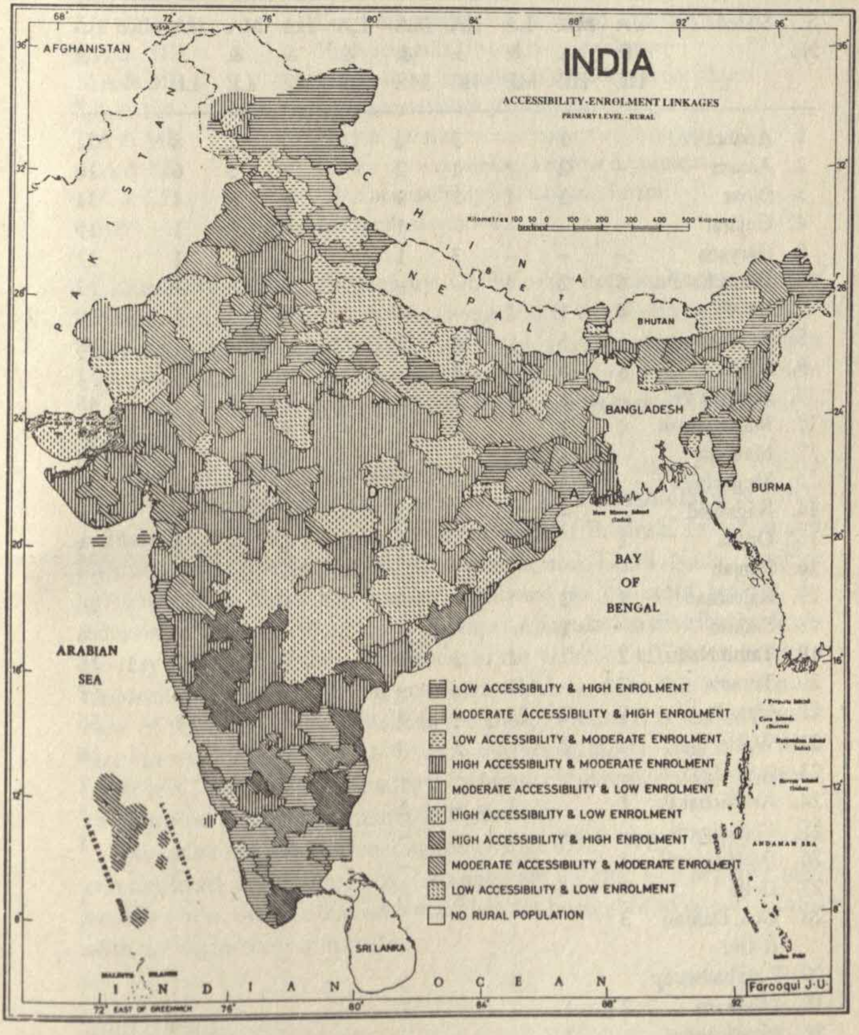
Table 5 Number of districts in different categories of mismatches

Category	No. of districts		Nature of mismatch
Low accessibility and high enrolment	34		
Moderate accessibility and high enrolment	43	112	Positive mismatches
Low accessibility and moderate enrolment	35		
High accessiibility and high enrolment	54		
Moderate accessibility and moderate enrolment	45	130	No mismatches
Low accessibility and low enrolment	31		
High accessibility and moderate enrolment	59		
Moderate accessibility and low enrolment	57	112	Negative mismatches
High accessibility and low enrolment	37		

Distribution of these districts in different States and Union Territories is presented in Table 6.

It may be seen from these tables that reduction of regional disparities acquires different dimension in different situations. The interventions called for will flow from the regional typologies made by a group of districts. The following paragraphs make an attempt to discuss the spatial pattern of various mismatches.

It may be seen from Fig. 2 that the low accessibility and high enrolment situation is confined, by and large, to those areas where terrain is difficult and thus population distribution is also sparse. However, districts


INDIA
ACCESSIBILITY-ENROLMENT LINKAGES
PRIMARY LEVEL - RURAL
Kilometres 100 50 0 100 200 300 400 500 Kilometres
AFGHANISTAN
PAKISTAN
CHINA
TIBET
NEPAL
BHUTAN
BANGLADESH
BURMA
INDIA
BAY OF BENGAL
ARABIAN SEA
SRI LANKA
INDIAN OCEAN
ANDAMAN SEA
LOW ACCESSIBILITY & HIGH ENROLMENT
MODERATE ACCESSIBILITY & HIGH ENROLMENT
LOW ACCESSIBILITY & MODERATE ENROLMENT
HIGH ACCESSIBILITY & MODERATE ENROLMENT
MODERATE ACCESSIBILITY & LOW ENROLMENT
HIGH ACCESSIBILITY & LOW ENROLMENT
HIGH ACCESSIBILITY & HIGH ENROLMENT
MODERATE ACCESSIBILITY & MODERATE ENROLMENT
LOW ACCESSIBILITY & LOW ENROLMENT
NO RURAL POPULATION
68°
72°
76°
80°
84°
88°
92°
96°
36°
32°
28°
24°
20°
16°
12°
8°
72° EAST OF GREENWICH
Farooqui J·U·

Fig·2

Table 6 State-wise distribution of districts in different categories of mismatch

S. No.	State/U.T.	LA & HE	MA & HE	LA & ME	HA & HE	MA & ME	LA & LE	HA & ME	MA & LE	HA & LE	NRP	To-tal
1.	Andhra Pr.	–	1	–	3	2		5	2	8		21
2.	Assam	–	2	1	1	2		1	3	6		10
3.	Bihar	–	1	1	2	9		6	8	4		31
4.	Gujarat	–	–	–	8	1		9		1		19
5.	Haryana	–	–	–	3	1		6		1		11
6.	Himachal Pr.	6	2	4	–	–	–	–	–	–		12
7.	J & K	4	1	2	–	–		2		1		10
8.	Karnataka	1	5	1	6	2		4		–		19
9.	Kerala	1	8	1	1	–		–		–		11
10.	Madhya Pr.	–	1		1	5	7	1	27	3		45
11.	Maharashtra	1	1		2	1	–	9	1	10	1	26
12.	Manipur		–		3	1	–	2		–		6
13.	Meghalaya		3		–	–	1	–	1	–		5
14.	Nagaland		–		1	–	–	4	–	2		7
15.	Orissa	1			–	4	2	1	3	2		13
16.	Punjab	–			12	–	–	–	–	–		12
17.	Rajasthan	1	3	1	–	8	1	1	7	4		26
18.	Sikkim		1	–	–	–	3	–	–	–		4
19.	Tamil Nadu	2	7	1	3	1	–	–	–		1	15
20.	Tripura	2	–	1	–	–	–	–	–	–		3
21.	Uttar Pr.	9	2	21	–	4	14	3	2	1		56
22.	W. Bengal	–	2	–	5	3	–	3	2		1	16
23.	A&N Islands	–		–	–	–	1	–	1			2
24.	Arunachal Pr.	1		1	–	1	2	–	–	–	–	5
25.	Chandigarh	–	–	–	–	–	–	1				1
26.	D&N Haveli	1	–	–	–	–	–	–	–	–	–	
27.	Delhi	–	–	–	1	–	–	–	–	–	–	1
28.	Goa, Daman & Diu	3										3
29.	Lakshadweep			1								1
30.	Mizoram	2	1									3
31.	Pondicherry		1		1			1			1	4
	India	34	43	35	54	45	31	59	57	37	4	399

LA & HE	Low accessibility and high enrolment
MA & HE	Moderate accessibility and high enrolment
LA & ME	Low accessibility and moderate enrolment
HA & HE	High accessibility and high enrolment
MA & ME	Moderate accessibility and moderate enrolment
LA & LE	Low accessibility and low enrolment
HA & ME	High accessibility and moderate enrolment
MA & LE	Moderate accessibility and low enrolment
HA & LE	High accessibility and low enrolment
NRP	No rural population

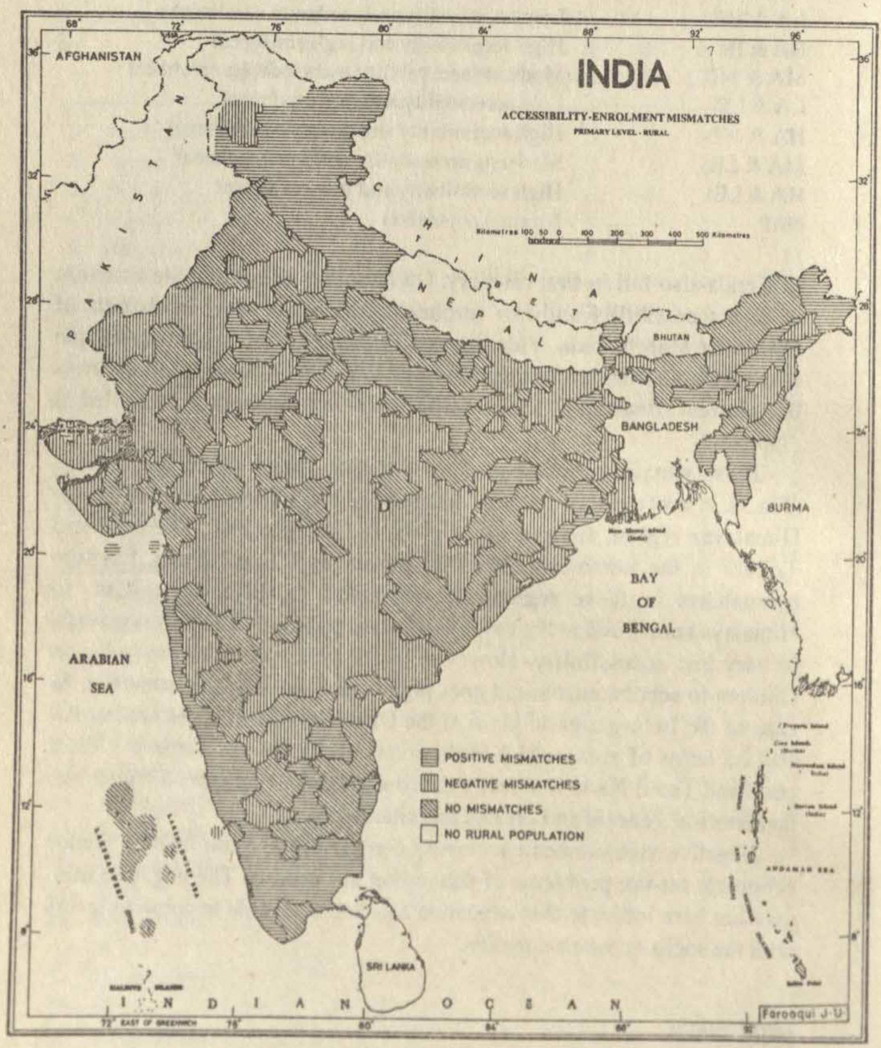
of Kerala also fall in this category. On the other extreme is the situation of high accessibility and low enrolment which is a scene in districts of Rajasthan, Marathwada, Vidarbha and Telangana Punjab present a unique case where no mismatches are observed (Fig.2). Distribution of districts in differrent situation of accessibility-enrolment linkages is presented in Appendix.

These situations when grouped together make significant pattern (Fig.3). It is noted that positive mismatches are a phenomenon in north-Himalayan region, Indo-gangetic plain in Uttar Pradesh, Mizoram and Tripura in the north-east, Konkan, Kerala and Tamil Nadu. Positive mismatches in these regions are attributed to different regions. In Himalayan north and in the north-east sparse population distribution leads to very low accessibility. However, in the wake of efforts to bring in children to schols, enrolment goes high which leads to this situation. In case of the Indo-gangetic plain in the Uttar Pradesh it is the settlement size (in terms of area) which leads to low accessibility. But in the West coast and Tamil Nadu it is really the educational development which has its historical genesis and creates this situation.

Negative mismatches encompass central India. With its own socio-economic set-up, problems of this region are unique. The negative mismatches here indicate that education has not been able to come to terms with the socio-economic reality.

Implications

It may be seen from this analysis that regional disparities in educational development acquired its character over a period of time in the wake of on-going processes of socio-economic development. Reduction of disparities, therefore, may not be considered as an isolated objective. It calls for coordinated action in various fields to counteract the dynamics of


INDIA
ACCESSIBILITY-ENROLMENT MISMATCHES
PRIMARY LEVEL - RURAL
Kilometres 100 50 0 100 200 300 400 500 Kilometres
AFGHANISTAN
PAKISTAN
CHINA
NEPAL
BHUTAN
BANGLADESH
BURMA
BAY OF BENGAL
ARABIAN SEA
INDIA
SRI LANKA
INDIAN OCEAN
ANDAMAN SEA
POSITIVE MISMATCHES
NEGATIVE MISMATCHES
NO MISMATCHES
NO RURAL POPULATION
72° EAST OF GREENWICH
Farooqui J.U.

Fig·3

socio-economic under-development on the one hand and politico-institutional framework on the other. It has been noted that educational development has a bias in favour of areas which have already attained a higher degree of development leaving behind those regions which have remained backward. On the basis of this analysis the following proposition may be made:

i) Planning for education should be based on principle of differentiation and integration. Solution for regional disparities, therefore, may be found only in the context of regional diversities.
ii) The concept of region in the context of education is an integrated one and therefore recognition of inter-dependencies will allow diversities to flourish which will strengthen the democratic pluralism.
iii) Regional disparities in educational development, viewed in this context, are a function of dynamics of socio-economic heterogeneity.
iv) Participation in educational process is neither a function of provision nor of devolution, diversification and decentralisation; it is a function of relationship between aspiration and expectation.

In the light of the above the following measures may be considered necessary.

1. Expanding Provision of Schools

It has been noted that provision of schools within walkable distance does not exist in many habitations. Although, these areas have peculiar physiographic and demographic situation which does not allow the official policy to provide schools, a solution will have to be found without delay. While NPE (1986) makes a commitment for UPE by 1990, one wonders how when the provision of learning does not exist. Whether it is formal school, non-formal education centre, Ashram school or mobile school, a learning medium will have to be provided. It may be important to mention here that proportion of habitations with a population of three hundred persons and more having primary schools within habitations has gone down during 1978-1986.

2. Strengthening School-Environment Linkages

Mere provision of schooling facilities does not ensure education. Infact, experience has shown that in many situations education has become an easy distraction and leads to alienation because it fails to adapt itself to local environment. In order to increase and strengthen the process of educationability, the school will have to come to terms with prevailing socio-economic reality. This may call for action in the following areas.

i) *Content of Education:* It is generally believed that what is taught in school, has little relevance and therefore neither parents find it useful to put child in learning activity, nor the child finds the classroom interesting. Although, NPE (1986) calls for making education relevant at all levels, the need is to operationalise it. This point however, has come under criticism from many on the plea that this will differentiate children and they will develop different aptitude. But it is too early to guess any social consequences of such reforms. Need based education as it is known is not a simple phenomenon and is to be operationalised with utmost care. 'Need' is to be determined objectively and its translation into curriculum has to take place in such a way so that it does not come as a burden on the child.

ii) *Medium of Instruction:* This aspect has always been a controversial issue in education and the opinions are divided on use of local dialect in teaching. Claims and counter-claims based on various evaluation studies have been put forward. Therefore, the question here is not of evidence, which may be moulded in any shape to confirm a view point, but is a question of rationality and logical reasoning. Let us think of a child who goes to school for the first time and is taught 'A' for *Amrud.* Now suppose in the dialect of the child 'Amrud' is known by some other name; how can he recognise it in his memory. To begin with, medium of instruction will have to be in the dialect of the child. At a later stage, however, other accepted language in the region may replace it gradually. It may be significant here to quote the following lines: The delimitation of political boundaries originated from rivalries that had nothing whatsoever to do with local life and often split ethnic groups on either side of territorial boundaries, while assembling under a single banner group that have no linguistic ties with one another. Concern for national unity will therefore prompt the national authorities to try to undermine the centrifugal forces that act on the various peoples brought together to form the nation, forces which are naturally calculated to entice them across the frontier. Linguistic communication is one of these forces, and one can easily understand the significance of teaching in the language that is used generally throughout the country, the language of the former coloniser, which has been entrusted with the mission of participating in the creation of national feeling.[6]

iii) *Community Participation:* It has now been accepted that one of the reasons for the failure of education system is the gap between school and the community. More often than not, the community has developed a passive attitude towards education. In order to avoid this alienation, local community will have to be made the active partner in the educational programmes. Although, NPE (1986) calls for far reaching reforms in educational management by recognising the role of 'Village Education Committee', to what extent it gets operationalised is an open question. The success of education system particularly in the context of glaring disparities will depend on the extent to which the local community become active partner in the process of educability.

3. *Integrating Education with Development*

It has been noted that education alone will not be able to make much headways. Educational endeavours will have to be coordinated with other developmental activities.[7] In a situation where education is considered an easy distraction because the masses do not see any visible benefit, it is unlikely that it will have an easy access. This raises the question of entry point which will have to be thought of very carefully in the local circumstances.

These apart the following may also be required to check the regional imbalances.

1) To make educational planning realistic in consonance with grass root level realities which will include among others: i) Availability of timely data at disaggregated level; ii) Improving reliability of data; and iii) Strengthening monitoring and evaluation;
2) Strengthening education-employment linkages to correct distortion between demand and supply and to check the problem of over-education and under-education in labour force;
3) Making educational administrators sensitive to problems of the

deprived; and

4) Mobilising additional resources for education.

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1. Moonis Raza and S.C. Nuna, "Enclavisation of Spurious Modernization: A Case Study of Bengal", 1982 (Mimeo).
2. S.C. Nuna, "Spread of Female Literacy in India: 1901-1981", (Mimeo), NIEPA, 1987.
3. P. Further, *The Recent Development of Education: Regional Diversity or Reduction of Inequalities,* pp. 68-69.
4. The district level planning is being implemented in various forms in different states. However, it is only in case of Andhra Pradesh and Karnataka that significant reforms in planning mechanism have been introduced.
5. Based on Moonis Raza, A. Ahmad and S.C. Nuna, *School Education in India, The Regional Dimension,* NIEPA, 1990.
6. J.M. Mazaba and E. Nthepe, "The Mother Tongue and the Teaching Language" in G. Mialaret, *The Child's Right to Education*, UNESCO, 1979, p. 168.
7. For relationship between education and development, see, S.C. Nuna, *Education and Development,* NIEPA, 1987; "Education-Health Linkages: An Exploration", NIEPA, 1988 (Mimeo); "Female Education and Infant Mortality", NIEPA, 1989 (Mimeo).

APPENDIX

Districts classified by accessibility and enrolment (age-specific) at primary level in rural India

Category	District(s)	States/UTs
Low accessibility and high enrolment	Kangra, Hamirpur, Una, Bilaspur, Mandi, Solan	Himachal Pradesh
	Kathua, Punch, Doda, Ladakh	Jammu & Kashmir
	Dakshin Kannad	Karnataka
	Idukki	Kerala
	Ratnagiri	Maharashtra
	Jaipur	Rajasthan
	Pudukkottai, Kanniyakumari	Tamil Nadu
	West Tripura, North Tripura	Tripura
	Dehradun, Garhwal, Pithoragarh,	Uttar Pradesh

	Almora, Kanpur, Sultanpur, Pratapgarh, Jaunpur, Ghazipur	
	Lohit	Arunachal Pradesh
	Dadra and Nagar Haveli	D & Nagar Haveli
	Goa, Daman, Diu	Goa, Daman & Diu
	Aizawl, Lunglei	Mizoram
Moderate accessibility and high enrolment	Cuddapah	Andhra Pradesh
	Sibsagar, Lakhimpur	Assam
	Katihar	Bihar
	Lahul and Spiti, Kinnaur	Himachal Pradesh
	Jammu	Jammu & Kashmir
	Kolar, Hasan, Chikmaglur, Shimoga, Uttar Kannad	Karnataka
	Cannanore, Malappuram, Palghat, Ernakulum, Kottayam Alleppy, Quilon, Trivandrum	Kerala
	Morena	Madhya Pradesh
	Kulaba	Maharashtra
	East Khasi Hills, West Khasi Hills, East Garo Hills	Meghalaya
	Baleshwar	Orissa
	Bharatpur, Sikar, Kota	Rajasthan
	Sikkim	Sikkim
	Chengalpattu, Dharmapuri, Madurai, Coimbatore, Tiruchirapalli, Thanjavur, Ramanathapuram	Tamil Nadu
	Uttarkashi, Jalaun	Uttar Pradesh
	Darjeeling, Medinipur	West Bengal
	Chhimtuipui	Mizoram
	Karaikal	Pondicherry
Low accessibility and moderate enrolment	Karbi Anglong	Assam
	Ranchi	Bihar
	Chamba, Kulu, Simla, Sirmaur	Himachal Pradesh
	Udhampur, Rajauri	Jammu & Kashmir
	Kodagu	Karnataka
	Trichur	Kerala
	Banswara	Rajasthan
	Nilgiri	Tamil Nadu
	South Tripura	Tripura
	Chamoli, Tehri Garhwal, Moradabad, Nainital, Bijnor, Aligarh, Gonda, Mainpuri,	Uttar Pradesh

	Farrukhabad, Fatehpur, Etawah, Allahabad, Hardoi, Unnao, Lucknow, Rai Bareli, Bahraich, Gorakhpur, Ballia, Varanasi, Mirzapur	
	Tirap	Arunachal Pradesh
High accessibility and high enrolment	Guntur, Nellore, Kurnool	Andhra Pradesh
	Kamrup	Assam
	Vaishali, Darbhanga	Bihar
	Rajkot, Amreli, Gandhi Nagar, Ahmedabad, Kheda, Bharuch, Surat, The Dangs	Gujarat
	Sonipat, Rohtak, Mahendragarh	Haryana
	Mandya, Bellary, Dharwad, Belgaum, Bijapur, Bidar	Karnataka
	Khozhikode	Kerala
	Bhind	Madhya Pradesh
	Solapur, Wardha	Maharashtra
	Manipur South, Manipur Central, Manipur East	Manipur
	Mokokchung	Nagaland
	Gurdaspur, Amritsar, Firozpur, Ludhiana, Jalandhar, Kapurthala, Hoshiarpur, Rupnagar, Patiala, Sangrur, Bhatinda, Faridkot	Punjab
	North Arcot, South Arcot, Tirunelveli	Tamil Nadu
	Koch Bihar, Nadia, Haora, Hugli, Puruliya	West Bengal
	Delhi	Delhi
	Lakshadweep	Lakshadweep
	Pondicherry	Pondicherry
Moderate accessibility and moderate enrolment	Visakhapatnam, Chittoor	Andhra Pradesh
	Cachar, Goalpara	Assam
	Gaya, Rohtas, Bhagalpur, Santhal Parganas, Dhanbad, Giridih, Hazaribagh, Palamau, Singhbhum	Bihar
	Valsad	Gujarat
	Ambala	Haryana
	Bangalore, Tumkur	Karnataka
	Gwalior, Mandsaur, Dewas, Betul, Hoshangadab	Madhya Pradesh

	Pune	Maharashtra
	Tengnoupal	Manipur
	Sambalpur, Dhenkanal, Phulbani, Puri	Orissa
	Junagarh, Jhunjhunun, Alwar, Ajmer, Jodhpur, Sirohi, Udaipur, Dungarpur	Rajasthan
	Salem	Tamil Nadu
	Ghaziabad, Bulandshahr, Mathura, Banda	Uttar Pradesh
	Maldah, Bankura, Birbhum	West Bengal
Low accessibility and low enrolment	Guna, Jhabua, Dhar, Vidisha, Mandla, Surguja, Bastar	Madhya Pradesh
	West Garo Hills	Meghalaya
	Sundergarh, Koraput	Orissa
	Barmer	Rajasthan
	Sikkim East, Sikkim South, Sikkim West	Sikkim
	Rampur, Budaun, Bareilly, Agra, Pilibhit, Shajahanpur, Etah, Kheri, Sitapur, Barabanki, Basti, Faizabad, Deoria, Azamgarh	Uttar Pradesh
	Nicobar	A & N Islands
	Kameng, Subansiri	Arunchal Pradesh
High accessibility and moderate enrolment	Srikakulam, West Godavari, Krishna, Prakasam, Anantapur	Andhra Pradesh
	Nowgong	Assam
	Patna, Nalanda, Bhojpur, Saran, Samastipur, Madhubani	Bihar
	Jamnagar, Surendranagar, Bhavnagar, Junagarh, Banaskantha, Sabarkantha, Mahesana, Panch Mahals, Vadodara	Gujarat
	Kurukshetra, Karnal, Gurgaon, Jind, Bhiwani, Hisar	Haryana
	Baramula, Anantnag	Jammu & Kashmir
	Mysore, Chitradurga, Raichur, Gulbarga	Karnataka
	Indore	Madhya Pradesh
	Kolhapur, Sangli, Satara, Dhule, Jalgaon, Ahmednagar, Buldana, Amravati, Chandrapur	Maharashtra
	Manipur North, Manipur West	Manipur

	Kohima, Phek, Wokha, Zunheboto	Nagaland
	Cuttack	Orissa
	Pali	Rajasthan
	Muzaffarnagar, Meerut, Jhansi	Uttar Pradesh
	Twentyfour Parganas, Jalpaiguri, Barddhaman,	West Bengal
	Chandigarh	Chandigarh
	Mahe	Pondicherry
High accessibility and low enrolment	East Godavari, Mahbubnagar, Medak, Hyderabad, Nizamabad, Karimnagar, Warangal, Nalgonda	Andhra Pradesh
	Siwan, Sitamarhi, Begusarai, Munger	Bihar
	Kachchh	Gujarat
	Sirsa	Haryana
	Srinagar	Jammu & Kashmir
	Datia, East Nimar, Durg	Madhya Pradesh
	Nasik, Aurangabad, Osmanabad, Nanded, Bir, Parbhani, Akola, Yavatmal, Nagpur, Bhandara	Maharashtra
	Tuensang, Mon	Nagaland
	Balangir, Ganjam	Orissa
	Bikaner, Churu, Nagaur, Jalor	Rajasthan
	Hamirpur	Uttar Pradesh
Moderate accessibility and low enrolment	Adilabad, Khammam	Andhra Pradesh
	North Cachar Hills, Darrang, Dibrugarh	Assam
	Nawada, Aurangabad, Gopalganj, Paschim Champaran, Purbi Champaran, Muzaffarpur, Saharsa, Purnea	Bihar
	Panna, Sagar, Damoh, Satna, Rewa, Shahdol, Sidhi, Ratlam, Ujjain, Shajapur, West Nimar, Sehore, Rajgarh, Bhopal, Raisen, Seoni, Narsimhapur, Chhindwara, Jabalpur, Balaghat, Rajnandgaon, Bilaspur, Raigarh, Raipur	Madhya Pradesh
	Thana	Maharashtra
	Jaintia Hills	Meghlaya
	Keonjhar, Mayurbhanj, Kalahandi	Orissa
	Sawai Madhopur, Tonk,	Rajasthan

Jaisalmer, Bhilwara, Chittaurgarh, Bundi, Jhalawar	
Saharanpur, Lalitpur	Uttar Pradesh
West Dinajpur, Murshidabad	West Bengal
Andamans	A & N Islands

FOUR

Planning Strategies for Removal of Regional Disparities in Educational Development: Past Experience and Future Perspective

M.R. Kolhatkar

1. Problem of Regional Disparities

The problem of regional disparities in development is a complex one. It is rooted in geographical factors but the observed regional disparities among the states are a result of complex interplay between a variety of factors including natural endowment of resources, technology, institutions and economic factors over a period of time. Geographically, a region may be hilly or with a difficult terrain and be otherwise inaccessible. There are plain areas which suffer from a shortage of precipitation either due to geographical factors or due to man-land interaction leading to the denudation of forest cover. An area may be backward also because of the opposite reasons, namely its proneness to heavy floods causing annual ravages to the crops and property and involving, over a number of years, denudation of soil cover. The continuous process of soil erosion not counteracted by soil conservation measures, may lead to the phenomenon of ravines. Apart from purely geographical factors, a region may be backward because it is on the periphery of the country and therefore neglected from the point of view of transport and communication facilities in general which may condition its capacity to benefit from technological advancement. A region which was at one time prosperous may suffer a decline because the main agricultural crop or the main industry on which its economy depended may suffer a setback because of decline of demand for its products for whatever reasons (availability of better sources of supply and/or change in the consumer tastes).

2. Approach in Successive Five Year Plans

Though the first two plans made reference to problems of regional development, it was in the Third Five Year Plan (1961-66) that a separate chapter was devoted to "Balanced Regional Development" (Chapter IX). The Third plan pointed out that although balanced regional development was not referred to in earlier plans, the general approach was expressed in a variety of policies and programmes embodied in earlier plans. Thus, during the First Plan, in 1953-54, a programme of permanent improvements in scarcity areas was taken in hand in several States. During the Second Plan, the question of construction of embankments for flood protection was addressed. Priority was given to programmes like agriculture, community development, infrastructure and village industries which have a bearing on regional development. In the Chapter on the subject in the Third Plan, a specific reference was made to industrial location and development areas, large projects as nuclei of regional growth, role of technology development, role of education and training, labour mobility and economic and statistical studies for regional development. It underlined the need for having development indicators including estimates of States' income. The Fourth Plan contained (Para 1.78) a Section on "Correction of regional imbalances" in Chapter I (Approach and Policy). It particularly addressed to the problem of imbalances in development as between states and recognised the role of Central Government in reducing the same through allocation of Central assistance, location of Central projects and adjustments of procedures and policies of national financial and other institutions. The Fifth Plan dealt with the problem from the point of view of bringing about uniformity and equality of social consumption amongst various areas of the country. The National Programme of Minimum Needs envisaged a frontal attack on the problem by attempting to allocate adequate resources for social consumption for all areas irrespective of resource constraints of individual States. The Sixth Plan dealt with regional disparities in Para 7.83 to 7.89. Apart from the question of flow of Central assistance, it suggested the sub-plan approach as in the case of integrated tribal development programme and project fund approach for local planning. The objectives Chapter (Chapter III) of the Seventh Plan also refers to the need for reduction of regional imbalances in economic and social development.

It can thus be seen that since the Third Plan, the problem of regional disparities has engaged the attention of planners. Recognition has also been given to the need for construction of objective indicators of backwardness or conversely development, and specific programmes to tackle the problem have also been formulated and implemented.

3. Role of Educational Development in the Context of Regional Disparities

The development of educational facilities is treated as an important prerequisite for general development. Thus in the Third Plan, in the Chapter on "Balanced Regional Development" referred to above, it is stated that "In areas which are less developed, lags in education are among the greatest handicaps in achieving rapid economic progress. Expansion of the general educational base through the programmes of free and compulsory primary education and provision of facilities for technical training is likely to make a steadily increasing contribution to the development of the less developed regions."

In programme terms, education is treated as a social service, the incidence of whose provision varies from area to area. Thus we see the emergence of the concept of the educationally backward state. Accordingly, some States have been identified as requiring special attention. Chapter 16 of the Fourth Plan entitled, "Education and Manpower" states in para 16.7 that Bihar, Madhya Pradesh, Rajasthan and Orissa have the problem of low enrolment of girls and of the children of Scheduled Castes and Scheduled Tribes whose numbers in the States are quite sizeable. It is suggested that efforts should be made to remove the imbalances in the States in regard to the provision of educational facilities at the elementary stage. In para 16.8, it is stated that the problem of enrolment of age group 11 to 14 years needs special attention in Bihar, Madhya Pradesh, Orissa, Rajasthan and Uttar Pradesh. The Fifth Plan (1974-79) in its Chapter 8 on Education states in para 8.17 that the outlays for the Minimum Needs Programme have taken note of the requirements of the educationally backward States and districts. The Plan, however, does not identify educationally backward States. For the first time a reference is made in Sixth Five Year Plan, (para 24.16), to educationally backward States. It states "in recent years, the rate of enrolment has approximately been 20 lakh and if the above targets are to be achieved, the educationally backward States of Assam, Bihar, Madhya Pradesh, Rajasthan, Uttar Pradesh and West Bengal would have to step up their present rates of enrolment considerably, in some cases more than double."

4. Indicators of Backwardness Including Educational Backwardness

Indicators of backwardness or, conversely, indicators of development, were developed in India initially in relation to industrial development. The Working Group on identification of backward areas recommended various criteria for identifying backward districts. But there was no criterion relating to education. The Chakravarti Committee on Backward Areas suggested 14 indicators for identification and classification of backward areas. Three of them relate to education, namely (i) percentage of male literates to male population; (ii) percentage of female literates to female population; (iii) percentage of total literates to total population. When there is a multiplicity of indicators, there is a statistical problem of constructing a composite index. The National Committee on Development of Backward Areas adopted an alternative approach of recognising certain problem areas as backward. They are: (i) Chronically drought prone areas, (ii) Desert areas, (iii) Tribal areas, (iv) Hilly areas, (v) Chronically flood affected areas, and (vi) Coastal areas affected by salinity. The report also identified two handicaps suffered by backward areas, viz. prevalence of feudal elements in production-relation and social structure and lack of administrative presence. The Dandekar Committee appointed by Government of Maharashtra (Fact Finding Committee on Regional Imbalances, April 1984), after examining the previous attempts for identification of backward areas suggested ten indicators of development which included male and female literacy. Dandekar Committee, however, adopted a different approach to the problem of regional disparities vide subsequent paras.

So far as the education sector is concerned, during the Sixth Plan, an attempt was made to define educational backwardness in more precise terms with the help of Fourth Education Survey of NCERT, 1978, according to which the national average of enrolment in elementary stage corresponding to age group 6 to 14 year was 65.5%. All States with average enrolment below the national level were treated as educationally backward. On this basis, the States treated as educationally backward are Andhra Pradesh, Assam, Bihar, Jammu and Kashmir, Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh and West Bengal.

5. Measures to Deal with Educational Backwardness

During the course of the Sixth Plan, it was decided to introduce a new Centrally Sponsored Scheme and sanction assistance under this Centrally Sponsored Scheme to educationally backward States as below:

i) Since 1983-84, 80% assistance for appointment of women teachers in formal primary schools is given.

ii) Since 1983-84, 50% assistance for starting co-educational non-formal education centres and 90% assistance for girls' non-formal education centres is given.

iii) Wherever funds are short for any new scheme to cover the entire country, priority is proposed to be given to backward states.

iv) Utilisation of Central assistance for priority programmes of Elementary Education and Adult Education in the State Plans is sought to be ensured through the device of earmarking of Central assistance.

During the Seventh Plan, the above schemes for giving special Central assistance to the educationally backward States continued with the difference that another State, viz. Arunachal Pradesh was added to the list of educationally backward States.

The second important development during the Seventh Plan was the extension of Border Areas Development Programme for development of Human Resources in the Border blocks in the four States of Gujarat, Rajasthan, Punjab and Jammu & Kashmir.

However, the most important development during the course of the Seventh Plan was the adoption by Parliament of the National Policy on Education, 1986 in May 1986 and adoption of Programme of Action in August 1986. Part IV of the Policy deals with education and equality and Part 4.7 entitled *"other educationally backward sections and areas"* states as below.

Suitable incentives will be provided to all educationally backward sections of the society, particularly in the rural areas. Hilly and desert areas, remote and inaccessble areas and Islands will be provided adequate institutional infrastructure.

Since the planning and management are important aspects in any programmes for removal of regional disparities it may also be useful to refer to the suggestions of NPE relating to management at district and local level which are contained in Part X, paras 6,7 and 8 reproduced below.

District Boards of Education will be created to manage education up to the higher secondary level. State Governments will attend to this aspect with all possible expedition. Within a multi-level framework of educational development, Central, State, District and Local level agencies will participate in planning, coordination, monitoring and evaluation.

A very important role must be assigned to the head of an education institution. Heads will be specially selected and trained. *School complexes* will be promoted on a flexible pattern so as to serve as networks of institutions and *synergic* alliances to encourage professionalism among teachers, to ensure observance of norms of conduct and to enable the sharing of experiences and facilities. It is expected that a developed system of school complexes will take over much of the inspection functions in due course.

Local communities, through appropriate bodies, will be assigned a major role in programmes of school improvement.

In terms of the National Policy on Education following modifications have been made in the pattern of Central assistance.

i) The scheme of appointment of women teachers in formal primary schools is now merged with the scheme of Operation Blackboard under which Central assistance is given to all States for converting single teacher schools into double teacher schools, for making good deficiencies in the teaching-learning equipment and for construction of pucca buildings where they are lacking.

ii) The assistance to backward States for opening of non-formal education centres is supplemented by a scheme of assistance to non-formal education centres to be located in hilly, inaccessible, tribal and urban-slum areas in non-backward States also.

6. Educational Backwardness and the Finance Commission

It is recognised that in order to have an overall view of the educational outlay, one must also take into account the non-plan outlay. The non-plan assistance to State Governments is provided by the Finance Commission. The First Finance Commission and Eighth Finance Commission took note of the need for upgrading educational facilities especially school buildings in the backward States. First Finance Commission provided only a marginal allocation. The Eighth Finance Commission provided to selected States Rs. 122.01 crores for conversion of single teacher schools into double teachers schools by appointment of 45,255 additional teachers and Rs. 164.39 crores for Construction of School Building for 38,946 schools which did not have pucca school buildings. The assistance for construction of school buildings has been recommended to be continued by the 9th Finance Commission in its Interim Report. The Finance Commission's recommendations are integrated with Annual Five Year Plan exercises by taking Finance Commission grants for educational development on the resources side and showing the programmes on the outlay outside.

7. Review of Past Experiences

Planning strategies for dealing with the problem of removal of regional disparities in educational development in the past have consisted of the following: (1) Treating educational facilities as an essential infrasturcture for general economic development, (2) Treating education as social consumption requiring coordinated investment along with other components of social consumption like health, nutrition, etc, (3) Sub-plan approach as in the case of tribal development which has special allocations for all sectors including education, (4) Incorporating indicator or indicators of educational development in the composite development indicator and giving financial assistance based on this composite indicator, (5) Identifying certain States as educationally backward states and giving them special central assistance, (6) Singling out certain blocks (border blocks) for special Central assistance.

It could thus be seen that except in the sub-plan approach and the border blocks, the tendency is to treat the whole State as educationally backward on the basis of crude indicators. While, whatever has been done in the past has contributed in some measure to removal of regional disparities, a more precise and disaggregated definition of educational backwardness is necessary.

8. Future Perspective

The future perspective will have to deal with three specific problems. The first problem is that of spatial unit for identification of educational backwardness. The second problem is that of constructing a more meaningful indicator of educational backwardness. The third problem is that of making educational development an integral part of State level plan exercise.

So far as spatial unit is concerned, it has been pointed out earlier that a State is treated as a unit of planning for identification of educational backwardness. However, a State is too large a unit and it is difficult to ensure that assistance given to backward States will really flow to the deserving areas. In the area of industrial development, for purposes of financial incentives, a district is being taken as a unit of planning. The latest thinking is to go below the district level to block level. An analysis in education sector shows that nine educationally backward States consist of 234 districts. In this list, there are 42 districts which are non-backward from the point of view of average enrolment. On the other hand, forward states comprising 160 districts contain 34 backward districts. If the Central assistance is solely related to State as a unit of planning, it implies the possibility of 42 non-backward districts in educationally backward

States benefiting at the cost of 34 backward districts in the list of educationally forward States.

There is a clear need, from the point of view of educational planning and not merely from the point of Central assistance, in taking the district as the primary unit of planning. There is an identifiable administrative framework and there are also readily available data at the district level. The National Informatics Network has proceeded on the basis of district as a basic unit. Of course, in subjects in which the level of development is sufficiently widespread, it is necessary to carry the analysis to sub-district level, to identify talukas or development blocks which are backward and focus attention on them. This is also the logical corollary of the approach of decentralised planning in terms of the restructuring of panchayati raj bodies.

Secondly, the criterion of overall enrolment at the elementary stage is too simplistic and does not deal with the problems relating to disparities between males and females, between rural areas and urban areas, between tribal and non-tribal areas, between SCs and non-SCs and so on. Moreover, there are several dimensions of educational development. These dimensions can be identified as accessibility, availability, quantity, quality, inter-connectivity, equity and utility. The indicator in use refers only to one dimension of the quantity. It may be necessary to develop a composite indicator of educational development and identify educationally backward districts on the basis of this composite indicator and ensure that allocation of resources is made accordingly.

It may be pointed out that NIEPA conducted a study on "School Education in India: The Regional Dimension" during 1982-84 on the basis of secondary data, namely Census 1971, 1981 and Fourth Educational Survey. It identified 158 backward districts and further categorised three as the most backward on the basis of a multiplicity of criteria related to various aspects of education. A further exercise done in NIEPA has been able to classify various districts in India by levels of women's well being in terms of a composite indicator (not merely female literacy) and the results differ from those based on a single indicator.

What is necessary is to update these exercises with reference to the latest data available.

The significance of these exercises is that it underlines the need for giving priority attention to districts identified as having low and very low educational development. If the funds are limited, it will be desirable to ensure that the financial requirements of these districts are met fully on priority basis in perference to more developed districts.

So far as the third problem of making education as an integral part of plan exercise at State level is concerned, reference may be made to the work in relation to district planning done in the State of Maharashtra where a formula for making district level financial allocations similar to the modified Gadgil Formula at the Central level has been developed. In this framework, the allocation for each district will be determined on the basis of rational criteria rather than ad hoc administrative considerations.

Government of Maharashtra started with allocating 60% of the State Plan outlay for distirct level schemes. During course of working of the scheme, this allocation has been reduced to about 25% to 30%. The criteria for deciding district allocations for Five Year or Annual Plans are as below:

	Item	Percentage to total District outlay
1.	Total population	60
2.	Urban population	5
3.	Scheduled Castes & Schedule Tribes population	5
4.	Backwardness in agriculture	5
5.	Backwardness in irrigation	4
6.	Backwardness in industries	5
7.	Backwardness in communications	5
8.	Special problems of drought prone areas	3
9.	Special problems of coastal areas	1.5
10.	Special problems of forest areas	1.5
11.	Amount held in reserve at State level for supplementing programmes relating to special problems of some districts	5

Secondly, this approach can be combined with the approach of calculating "backlogs" of the development sector (including education sector) as suggested by Dandekar Committee for which additional allocations over and above normal allocations can be made.

Dandekar Committee identified the imbalance of the order of Rs. 3186.78 crores in nine sectors like irrigation, communication, education, public health, water supply, etc. Govt. of Maharashtra has been earmarking specific funds for the removal of identified imbalance in various districts. So far as the education sector is concerned, the method followed by Dandekar Committee was as below. In the case of general education, the Committee found out the physical backlog in relation to State average in terms of number of teachers per one lakh population. The cost norms for teachers at various levels were adopted (Rs. 10,000 for primary education, Rs. 15,000 for secondary education and Rs. 30,000 for pre-university and university education). In the case of adult education, backlog was assessed on the basis of Adult Education Centres per thousand of illiterate adult population. In the case of technical education the backlog was calculated in terms of number of sanctioned seats per one lakh population compared with the State average. There can be criticism of the method of Dandekar Committee, namely that it does not consider age-specific enrolment ratio but instead considers enrolment in relation to total population, that it ignores deficiencies in physical infrastructure, etc. All the same, Dandekar Committee has the merit of having suggested one viable scheme for removing regional imbalances which has actually been implemented in one State.

Conclusion

Since regional disparities are multi-causal and a result of a long historical process, the reduction of such disparities will also have to be dealt with on a number of fronts and the solution of the problem is likely to take a number of years. However, a clarity in thinking as to objective reasons for disparities and evolution of suitable strategies for their removal are imperative. At the same time, it should also be remembered that public investment is only one way of tackling the problem. It would be necessary to complement the public investment by institutional investment as well as community efforts. It is also necessary to rememeber that regional disparities are an evolving problem and it may be impossible to eliminate them completely. The aim of the planning strategy is at best to reduce them to the minimum.

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FIVE

Education and Rural Regional Development: Options and Planning Strategies*

R.P. Misra

The contemporaneous view of regional development is not simply one of economic growth in the narrow sense but one of balanced social and economic development. In temporal terms such a development must be sustainable. This view equates regional development with far reaching transformation of the social and economic structures, institutions, relationships and processes leading to an equitable distribution of land and other assets, generation of new employment, general improvement in health and shelter and greater opportunities for people to realize their full potential through education.

In view of its importance to the present as well as future generations, education has been viewed traditionally as an important instrumental variable towards achieving these goals.

Consequently, there has been, in the last two or three decades, a rapid quantitative expansion of the existing education largely in its old image, under the assumption that this would equalise opportunity and develop technical and leadership skills needed for development. This expectation has not materialised in view of the misfit between the attributes of inherited education systems and the realities of rapidly changing societies. The maladjustment has been particularly severe in rural areas, which were neglected in the allocation of scarce national education resources, and where the incompatibility between the output of the educational system and the learning needs of children and adults outside schools is more severe. This set of circumstances has predictably stimulated a strong new interest in restructuring the educational system with a view to increase its contribution to total transformation.

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*Terms regional and rural have been treated as coterminous in this paper as rural urban disparities in educational development are obvious and pervading.

A. *Survey of Rural Educational System*

In order that education can be responsive to rural transformation needs in this fashion, it must meet the following types of needs (Nichoff and Neff, 1977; Coombs and Ahmed, 1974):

1. *Basic or General Education* — focused on literacy, numeracy and a basic understanding of the environment, e.g. primary and secondary schools.
2. *Work-Directed or Occupation Education*— specially dispersed to impart particular skills and knowledge associated with remunerative work opportunities. These opportunities may be in (a) primary activities — farming, animal husbandry, forestry, fishing, etc.; (b) off-farm production and commercial activities — artisans, light manufacturing, construction, retail, repair shops, etc.; and (c) general service personnel — rural planners, administrators and technical experts.
3. *Family Betterment Education*— here the focus is on skills and knowledge pertaining to health, nutrition, family planning, etc.
4. *Community Betterment Education* — the focus here is on training in political participatory activities, community projects, etc.

Very few rural areas provide for these four types of educational needs. Educational services available to many rural areas are a blend of formal and informal education. A useful way to characterise the type of educational environments in rural areas appears in Fig. 1 (La Belle, 1977). Here we recognise three types of environment— formal, informal and non-formal. Informal education is defined as "the lifelong process by which every person acquires and accumulates knowledge, skills, attitudes and insights from daily experiences and exposure to the environment" (Coombs and Ahmed, 1974). Non-formal education is any organised, systematic educational activity carried on outside the framework of the formal system to provide selected types of learning to particular subgroups in the population, adults as well as children. Formal education is the institutionalised hierarchically structured education system from primary school to university. In Fig. 1 the above three types of education are viewed as predominant educational modes rather than discrete entities. In the case of formal education mode, if formal characteristics are taken, we arrive at the graded hierarchy schools. Within the non-formal mode, the formal characteristics may lead to granting of certificates, the non-formal characteristics to institutional participation (La Belle, 1977). The advantage of Fig. 1 is not to be constrained by the instructional aspects of non-formal education but also with the secondary and potentially more important participatory experiences in terms of learning outcomes.

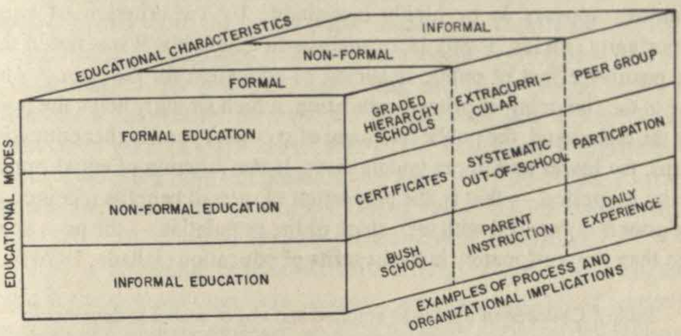

Fig.1. Formal, non-formal and informal relationships.

The following survey of the state of the rural educational system in developing countries, identifying their objectives, their modes of delivery, their quantitative achievements, their distributional outcomes, and their relevance to the rural transformation requirements, highlights the focus and key issues that must engage planners concerned with using educational (along with other complementary) strategies for rural transformation.

Goals and Types of Learning Environments

In the 1950s and 1960s most developing countries launched a massive expansion of their educational systems. The objectives were to increase the enrolment of students and reduce the non-schooling gap — the difference between school-age population and actual enrolment. Their achievements in terms of enrolment are impressive, the enrolments vary from 96.4 million in 1960 to 193.3 million in 1975, though the enrolment gap has widened to some degree (Table 1). Enrolment in higher education has expanded in these countries at a greater rate than enrolment in secondary education, while the latter, in turn, expanded at a faster *rate* than enrolment at the primary level.

Much of this educational expansion has taken place in the public sector, though in some countries in Latin America and Africa, a significant percentage of children continue to be enrolled in private schools. Such private schools financed by tuition fees are largely serving the higher income groups. Public educational systems are heavily subsidised by government, whose income derives from the tax structure, which is often proportional. The distribution of benefits from education in developing countries appears to be highly inequitable by the criterion of equal opportunity (Fields, 1980). In an analysis in Colombia, it was noted that the positive effect of public financing of education for the poor is only due to the financing of primary education, which strongly helps the poor. On the other hand, the public financing of secondary and higher education helps, the lower and upper middle class. If the criterion of equal opportunity is applied — that is, the proportion of overall benefits received by the poor is compared with their share of the population — the poor share less than proportionately in the benefits of education (Jallade, 1974).

Table 1 Children of ages 6-11 enrolled and out of school in developing countries, 1960-75 (in millions)*

	1960	1965	1970	1975
Population	205.7	242.1	179.8	313.8
Number enrolled	96.4	131.9	161.1	193.3
Number out of schools	109.3	110.2	118.7	120.5

* Not including China, N. Korea and Vietnam.
Source: World Bank 1980, Annexure 4.

However, this rapid expansion of educational system inherited from earlier elitist orientations, has been irrelevant to the needs of the majority of the population. The emphasis was on the requirements of the modern urban industrial sector and its elite employees, with the education delivered in an institutional, hierarchically structured environment. The resulting irrelevance of education has become more severe in rural areas for several reasons. First, rural areas have been denied their share of national resources for education (as in other dimensions of development in the 1960s and 1970s). Secondly, the misfit between the output of the school system and what was required for functioning effectively in rural occupations was most severe. Further, since formal schooling was largely seen as education, the learning needs of children and adults outside school were largely ignored.

This situation has stimulated considerable interest in understanding the "external" relations of education, that is, how education relates to the world of work. In other words, how does general education relate to vocational education, and how do schools prepare students for future occupatiions and what types of learning are possible in and out of school? When the issue is framed in this fashion, one has a functional view of education distinct from a structural or institutional approach used traditionally. In this view, the needs of the learners are identified first and a set of educational (equated with learning) means appropriate for these needs is defined. As UNESCO suggested, education can no longer be viewed as a time-bound place-bound process confined to schools and measured by years of exposure (ICDE, 1972). Education is a continuous process, stretching from childhood to the adult years involving a variety of means and learning environemnts. Earlier, three such learning environments — formal, non-formal and informal — were identified.

There is increasing agreement that, ideally, countries and regions should try to develop over time "lifelong learning systems" or recurrent education and training systems, so as to promote a diversified range of useful learning options through life. Any such system would obviously have to define carefully the links between education and work, a subject we turn to in the case of rural development.

B. Education and Rural Transformation: Some Perspectives

As noted earlier, education has multiple claims on national resources: first, it improves the quality of life of the recipients. Second, it leads to improvements of nutritional levels, health care, and to reductions in fertility. Third, education contributes to productivity and growth in incomes and in many cases, to an improved distribution of income as well.[1]

Much of the research carried out to substantiate these claims has focused on the effects of education on income. Several strands of inequity are evident in such studies.

1. Cross-national analyses of role of education in explaining GNP gap among countries;
2. Aggregate production functions and growth accounting;
3. Micro-level production functions;
4. Rates of return and earnings functions; and
5. Studies of incidence of education benefits.

1. Cross-national Analysis

Among the many attempts to specify the extent of which human factors might explain income gaps among countries, the work of Anne Krueger is noteworthy (Krueger, 1968). Assuming an underlying aggregate production function with constant returns to scale, she estimates the effects of education as a proportion of the per capita income gap between US and each of many countries (Table 2). The largest contribution of education are associated with lower level of per capita income. The striking deviance for Japan suggests that it was ready for rapid growth in production with post-war accumulation of investment in machinery and equipment.

In analysing differences in incomes per capita among 23 countries, Fallon and Layard (1975) tested through the use of two-level CES production function the hypothesis that skills and physical capital are complementary. Their model attributed the greater part of the gap in per capita incomes between US and most developing countries to physical capital and the "efficiency parameter". Education is important, but so are physical capital and organisational efficiency. Somewhat similar results were obtained by other cross-national studies (Correa, 1970, Maddison, 1970).

2. Aggregate Production Functions and Growth Accounting

Much of the work of production functions to explain the role of education was stimulated by the work of Schultz (1961), who himself focussed on the rate of return of education. Noting that the stock of education in US rose approximately by 850 per cent between 1900 and 1956 as compared with an increase in reproducible capital of 450 per cent (in same period) he argued that the return to investment in education is at least as large as, if not larger than that to non-human capital.

The production function traditionally used is the Cobb-Douglas variety. In a general and simple form, the following versions appear in the literature:

$$X = X(A, K, L) \tag{1}$$
$$X = X(A(t)K, L) \tag{2}$$
$$X = X(K, A(t)L) \tag{3}$$
$$X = X(K, L, A(t)) \tag{4}$$

where X is national output, K is capital, L, labour inputs and A stands for an index of technology (or "technological progress" or "organisation", etc.).

Table 2 Education and gaps in per capita incomes between the United States and other countries as measured by Krueger (1968)

Country	Per capita GDP as percentage of U.S. value	Per capita attainable income with present human resources	Percentage by which attainable income is reduced by gap in education		Percentage gap explained by education
	(1)	(2)a	(3)b	(4)c	(5)d
USA	100.0	—	—	—	—
Canada	72.6	100.5	8.1	7.9	28.8
Israel	38.3	83.8	13.6	13.9	22.5
Japan	14.4	93.2	3.7	4.3	5.0
Puerto Rico	23.2	59.8	12.6	16.5	21.5
Jamaica	16.2	56.7	16.0	21.1	25.2
Panama	15.0	51.5	16.0	21.5	25.3
Mexico	14.2	45.6	22.9	29.5	34.4
Greece	12.5	71.2	28.6	29.8	34.1
Portugal	11.6	67.1	29.9	31.3	35.4
El Salvador	7.5	45.5	24.1	30.5	33.0
Honduras	7.5	36.6	23.9	33.3	36.0
Peru	7.3	51.0	18.3	23.3	25.1
Iran	7.2	39.8	33.2	40.0	43.1
Jordan	6.9	38.7	23.3	31.3	33.6
Malaysia	7.9	44.2	25.0	31.5	34.2
Indonesia	3.1	37.3	32.2	38.8	40.0
S. Korea	4.7	44.3	24.8	30.8	32.3
Taiwan	3.9	48.5	21.6	27.2	28.3
Thailand	3.6	46.5	21.4	27.6	28.6
India	3.0	34.1	32.6	39.3	40.5
Ghana	7.7	38.0	30.3	37.4	40.5

Source: Bowman (1980).

a. Per capita income attainable with present human resources if the country has US per capita non-human resources. Human resources as defined by Krueger included age structure, education and rural-urban sectoral composition.

b. Controlling for age and sector.

c. Including half of the age-education-sector interaction. (Controlling for age and education, sector had a very small effect.)

d. Column (4) divided by [100 — column (1)].

Wheeler (1980) in implementing "a simultaneous model of Human Development and Economic Growth" for 88 developing countries in the 1970s, found literacy to be consistently labour augmenting to foster growth in manufactured exports, and to contribute significantly to the improvement of other welfare indicators. Increase in adult literacy had a significant positive effect in the equations explaining rates of investment growth over 1960-77. In extensive simulation experiments with different schooling intensities. Wheeler noted that unless the primary school enrolment ratio is over 80 per cent, "the performance of the socio-economic system seems fundamentally constrained in the long run". Correa (1970) and Nadiri (1972) got similar results (Table 3).

Table 3 Contribution of labour input components to economic growth

Country	Period	Contribution of labour input type			
		Education	Health and nutrition	Employment growth	Total labour input
Argentina	1950-62	0.53	0.12	0.93	1.58
Brazil	1950-62	0.18	0.43	1.83	2.44
Chile	1950-62	0.20	0.20	0.65	1.05
Colombia	1950-62	0.20	0.49	1.66	2.35
Ecuador	1960-62	0.23	0.32	0.92	1.47
Honduras	1950-62	0.29	0.82	1.06	2.17
Mexico	1950-62	0.05	0.93	1.43	2.41
Peru	1950-62	0.14	0.57	0.67	1.40
Venezuela	1950-62	0.19	0.21	2.19	2.59
India	1950-60				1.86
Philippines	1947-65				2.24
Netherlands		0.24	0.04	0.78	1.06
USA	1950-62	0.49	0.02	0.90.	1.41
W. Germany	1950-62	0.11	0.28	1.49	1.88
France	1950-62	0.29	0.15	0.07	0.51
Belgium	1950-62	0.43	0.09	0.40	0.92
UK	1950-62	0.29	-0.03	0.50	0.76
Japan	1950-62	0.31	n.a.	2.48	

Source: Correa (1970); Nadiri (1972)

3. *Microlevel Production Functions*

The aggregate studies reviewed above do not provide much insight into the processes of interaction between education — formal or non-formal — and new investment or growth in a region. Micro behavioural data on the performance of production units — farmers, light industry manufacturers — could provide much greater insights into these processes linking education and economic development.

Two micro analytical studies are worth noting in this reagrd. Saxonhouse (1977), in an analysis of data on individual cotton spinning firms in Japan for the five decades prior to 1935 used a generalised production function.

From his analysis, Saxonhouse showed that workers' experience, education and working conditions had large and pervasive effects on better productivity improvements and absorption of labour. Management's education had little effect and management's experience and age of equipment had no effect at all. A change in the incidence of primary education had an output augumenting effect (through its influence on labour and capital) and on returns to scale.

A number of other micro studies of the role of education on the productivity of small farmers have been reveiwed by Lockheed, Jamison and Lav (1980). On the whole, their findings suggest that education had a positive effect — on an average farm productivity increases by 7.4 per cent as a result of the farmer completing four additional years of elementary education rather than one. A few studies suggest a threshold number of year (4-6) at which the effect of education became more pronounced. Further, the studies suggested that the effects of education were more likely to be positive in modernising environments rather than traditional environments. However, none of the studies explored the issue of how (i.e. via literacy, numeracy or modernity) education affects productivity.

4. *Rates of Return and Earnings Functions*

Empirical cost-benefit analysis was first proposed by a Soviet scholar Strumilin (1929). Much of the work has actually followed the work of Schultz (1961) and Becker (1960). In the sixties, the popular procedure was to estimate the rate of return to education as in the following example: if one is interested in the private rate of return to investment in higher education, assume Y stands for labour earnings, V and S are subscripts representing university and secondary education, the rate of return (v) is obtained from solving the following:

$$\sum_{t=1}^{n} (Y_u - Y_s)t\,(1 + v)^{-t} = \sum_{t=1}^{c} (Y_s)t\,(1 + r)^{t} \qquad (5)$$

where there are c years when education costs are incurred beyond the age of 18, and n benefit years (Equation (5) is solved iteratively).

In the seventies the benefit cost analysis of education is investigated more often by the use of earnings functions:

$$\text{In } Y_i = a + b_{si} + c\,E_{xi} + d\,E_{xi}^2 \qquad (6)$$

where S represents years of schooling for individual i E_{xi} represents years of labour market experience. Eq. 6 is based on human capital theory and the parameter b is the average private rate of return to one year of extra schooling.

The returns to education by level of education and by type of regions are displayed in Table 4 drawn from Psacharopoulos (1980).

Table 4 Returns to education by level and region or country type (in percentages)

Region or country type	N	Private			Social		
		Pr.	Sec.	Hr.	Pr.	Sec.	Hr.
Developing							
African	(9)	29	22	32	29	17	12
Asia	(8)	32	17	19	16	12	11
Latin America	(5)	24	20	23	44	17	18
Average	(22)	29	19	24	27	16	13
Intermediate	(8)	20	17	17	16	14	10
Advanced	(14)	(a)	14	12	a.	10	9

N = Number of countries in each group.
(a) Not computable because of lack of control group of illiterates.
Source: Psacharopoulos (1980).

It must be evident that returns to primary education are the highest, suggesting that top priority should be given to primary education as a form of investment in human resources. The returns to education are higher in developing countries relative to affluent economies. The private returns to education are much higher than social rates of return especially at the university level, indicating that some university education can be shifted to the private sector without becoming a disincentive to university higher education.[2]

5. Incidence of Education Benefits

Educational benefits are greater for some groups than for others (Fields, 1980). Given the same measured skills and education, men earn more than women in most developing countries; some racial groups do better than others; in-migrants do as well as lifelong residents of an area. Modern sector workers fare better than traditional sectors in Colombia and Singapore. White-collar groups do better than blue-collar workers in Malaysia.

Further, studies suggest that educational opportunities differ among groups — stratified by sex, race, tribe — in developing countries. Such differential participation in educational system is an important cause of income inequality. Among the reasons why poor do not invest in education of their children are market conditions that work against the poor and limitations of opportunities imposed by class structures in those societies.

Before completing review of the effects of education on incomes, one must enter a cautionary note about the results reviewed so far. Since social rates of return are often used for countries' past educational performance and in planning education for the future, criticism of the methods of estimating social rate of return (SRR) need to be heeded. The assumption behind the computation of SRR of education is that differences in incomes among individuals with different educational attainments reflect differences in their social marginal productivity and those differences are traceable to their education (Fields, 1980). Such assumptions of the labour markets in developing countries are not always plausible, so that estimates of SRR need to be treated with caution.

Clearly, there are social benefits of education in terms of reduction of poverty, higher incomes, etc. Nationally, or regionally, we observe that education and income are positively correlated. It is a fact that higher education *causes* higher national income and higher national income *permits* a high level of education. Researchers have not yet established to what extent education *causes* higher income and to what extent it is a *result* of higher incomes.

Considerable work has been done in India on incidence of educational benefits under the auspices of NIEPA. A recent Atlas giving districtwise literacy and education details highlights the disparities — regional, and integroup. It points to following major conclusions.

1. Educational level in the country as a whole is still very low except in a few pockets.
2. Education among women and 'backward' communities is at a very low level.

3. Educational level in the heartland of India consisting of Uttar Pradesh, Bihar, Madhya Pradesh and parts of Orissa and Rajasthan is very low.
4. There is positive correlation between educational level of the people and their performance in different walks of life (Table 5).

Table 5 Selected developmental indicators

Indicator	Highest in a district	Lowest in a district	India
Literacy, 1981	81.66% (Kottayam in Kerala)	7.73% (East Kameng in Arunachal Pradesh)	36.23%
Female literacy, 1981	79.13% (Kottayam in Kerala)	2.18% (East Kameng in Arunachal Pradesh)	24.82%
Sex ratio, 1981	1242 (Ratnagiri in Maharashtra)	712 (Calcutta in West Bengal)	934
Couple protection rate, 1984	67.7% (Bharuch in Gujarat)	4.2% (Kupwara in J & K)	29.2%
Agricultural productivity in Rs./hectare,	4126 (Kanniyakumari in Tamil Nadu)	54 (Barmer in Rajasthan)	973
Voting participation, 1984	88.50% (Hooghly Constituency in West Bengal)	34.80% (Koraput Constituency in Orissa)	

Source: Moonis Raza, A. Ahmad and S.C. Nuna, *School Education in India: The Regional Dimension,* 1990, New Delhi: NIEPA.

C. Educational Requirements for Rural Transformation

Two kinds of educational needs are required for rural transformation. One is the rural school, where general education can be provided. As noted earlier, completion of four years of school improves farm productivity. However, it is important to remove the urban bias in school curricula.

Our focus is on the second educational need — the learning needs of the occupational groups in the rural area. We recognised earlier three types of such grups:

- — persons engaged in primary activities (farming, animal husbandry, fishery, etc.);
- — off-farm production and commerical activities — artisans, light manufacturing construction, retail, repair shops, etc.;
- — general service personnel — rural planners, administrators and technical experts.

An idea of the learning needs of these groups can be obtained from Table 6 taken from the work of Coombs and Ahmed (1974). It must be clear that these needs can be met by a combination of different learning environments identified earlier. Various components of such a programme must be viewed as parts of an overall knowledge-generation and delivery system, whose mission is to help farmers, artisans, and other ruralites. Second, they must be seen as part of a rural development system, involving, with educational elements, a number of non-educational elements.

The philosophy underlying such a design can be best described by the following. What types of learning have to take place so that people are adequately prepared for work? What are the functional roles in this learning process of general education, occupation-oriented education, specific training and work experience? When should the individual begin his occupational preparation and in what sequence?

D. Strategies for 1990s

India, and for that matter most of the developing countries, have practically lost four decades since independence to launch a massive programme of educating the people. If China could make strides, India was better prepared for it.

India's low literacy rate is a slur on its planning and organisational capabilities. What has happened in these last forty years is the multiplication of schemes and projects, spending money on schemes which do not make any major dent in the problem and which isolate education from rest of the developmental activities.

India has a large pool of specialists (should we say a large cesspool of specialists) who plan everything from ivory looking plastic towers. We have achieved success whenever people have been freed even partially from controls, restrictions, planners, and official 'developers'. This ap-

Table 6 Illustrative rural occupational groups and their learning needs

Groups	* Types of learning needs at varying levels of sophistication and specialisations
A. Perosns directly engaged in agriculture	
1. Commercial farmers	* Farm planning and management; rational decision-making; record keeping; cost and revenue computations; use to credit
2. Small subsistence and semi-subsistence farm families	* Application of new inputs, varieties, improved farm practices
3. Landless farm workers	* Storage, processing, food preservation * Supplementary skills for farm maintenance and improvement, and sideline jobs for extra income * Knowledge of government services policies, programmes, targets * Knowledge and skills for family improvement (e.g. health, nutrition, home economics, child care, family planning) * Civic skills (e.g. knowledge of how cooperatives, local government, national government function)
B. Persons engaged in off-farm commercial activities	
1. Retailers and wholesalers of farm supplies and equipment, consumer	* New and improved technical skills applicable to particular goods and services
2. Suppliers of repair and maintenance services	* Technical knowledge of goods handled sufficient to advise customers on their use, maintenance, etc.
3. Processors, stores and shippers of agricultural commodities	Management skills (business planning; record keeping and cost accounting; record keeping and cost accounting; procurement and inventory control; market analysis and sales methods; customer and employee relations; knowledge of government services; regulations, taxes, use of credit)
4. Suppliers of banking and credit services	

5. Construction and other artisans	
6. Suppliers of general transport services	
7. Small manufacturers	
C. General services personnel: rural administrators, planners, technical experts	
1. General public administrators, broad-gauged analysis and planners at subnational levels	* General skills for administration, planning, implementation, information flows, promotional activities
2. Managers, planners, technicians, and trainers for specific public services (e.g., agriculture, transport, irrigation, health, small industry, education family services, local government, etc.)	* Technical and management skills applying to particular specialties Leadership skills for generating community enthusiasm and collective actions, staff team work and support from higher echelons
3. Managers of cooperatives and other farmer associatiions	
4. Managers and other personnel of credit services	

Source: Coombs and Ahmed (1974).

plies to education sector too. Recent case of 100 percent literacy in Kottayam is an example of this. It is the people's initative which has done the job.

Education has now become too highly bureaucratised to grow at a rapid rate. Primary education is, for all practical purposes, neglected in almost all the states of the country, whether one looks from the point of view of infrastructure, manpower, investment, enrolment or any other criterion. Even the secondary education in rural areas is still confined to advanced 3 Rs.

We are on the eve of the eighth five-year plan. This should be the plan period for a major initiative so that when India enters the next century after a decade, it is cent per-cent literate (age group 10-40). This will ensure literacy in practically all age groups by 2020.

What should be done to achieve this goal?

1. Investment in primary education must be doubled or even trebled during the eighth plan.
2. Special drive under Jawahar Rozgar Yojana etc. to provide functional school buildings for each and every primary school of the country, should be launched. Best buildings anywhere in the country should be school buildings.
3. Special drive to minimise, if not stop completely, corruption in education bureaucracy at the district and state levels is a must to bring about a semblance of discipline in the system.
4. Variety of cost intensive projects pertaining to adult literacy should be done away with. I know, what I am saying is unpopular and even unpalatable. But the reality of situation in the field makes us say so. The projects are largely on paper and benefitting only the educated. The money should be diverted to primary education. If every child is in school now, there will be no adult illiterate by 2020 AD. A cost benefit analysis of primary education vis-a-vis adult education shows that for the latter, the mass media is the right channel.
5. Television has now reached almost every nook and corner of the country. We have, however, forgotten the fact, that educational needs of the illiterate people of India was the major reason for its induction. It is unfortunate that the potentials of this great medium is not being fully utilized. The educational objective has become tertiary. There is need to redefine its role and to make it a medium of both non-formal and informal education. People who are illiterate, do not need literacy as much as they need education. We should concentrate our resources and efforts on school going children as far as formal education is concerned.
6. The above would answer the question of availability, accessibility, and participation in formal and non-formal educational system.

> The question of quality however remains unanswered. The quality has to be seen in two perspectives: 1) relevance and 2) degree of efficiency and effectiveness.

We have plethora of reports on what to do. We have not been able to achieve much — the New Education Policy notwithstanding. There is no need to give further suggestions because the suggestions already made and not implemented, have not worked. One thing that is, however, obvious is that unless the initiative is from below, and education becomes the concern of the people, not much can be achieved. We know that much of what now goes in the name of education is against the very grain of Indian culture. Yet, if there is something that is happening, it is in institutions which have come up without government support.

Government is public. But there is complete failure of the public sector in the educational field leading to a situation where the elite private schools have become public schools. These schools now shape the destiny of our country for they are the fountainhead of our ruling class. This class has pervaded all walks of life — political, economic, social and even academic. In its scheme of things even educational programmes must be geared to strengthening of the control system and to eliminating whatever is left of the popular participation.

The need to rethink about education as the core sector of our society and treat primary school as the core institution to build future India is more today than ever before. But who would do that is a question yet to be answered. The models of what needs to be done exist in plenty. But we do not have the means and will to use these models on a wider scale.

A Summing Up

From this review, what analytical and policy issues emerge? First, there is broad-based evidence that education has beneficial effects on development. Private and social rates of return are impressive in developing countries. Such studies of human capital investments, aggregate production functions and growth accounting, however, do not provide much insight into the processes of interaction between education (formal or non-formal) and new investment in a region. A few microanalytical studies provide more insights into the education-growth relationships. However, what is really needed is a production function of skills and knowledge. Such a function would relate the level of skills and performance of a person over time to the level and timing of the inputs of formal schooling, work experience, abilities, interests, lecture and other interactions.

Second, while the performance of educational systems in developing countries has been remarkable in quantitative terms, such as enrolment, these educational opportunities are inequitably distributed among individuals distinguished by sex, racial composition, rural-urban location, and modern or informal sector.

Third, the extent of educational system is largely inappropriate to the needs of the workplace, particularly in the rural sector. The principal issues revolve around: (a) kind of education or training that is best suited for rural occupational opportunities — farming, animal husbandry, fishing, light manufacturing, artisanry, etc.; and (b) the institutional forms of delivery of such training. This calls for various blends of formal and non-formal education and training. These combinations could include general education, professorial education, on-the-job training and mix of education and work.

Fourth, the internal organisation of education could be improved in terms of optimal use of resources, so that quality education is equitably available to all. Since the resources for education are scarce, careful analysis of the costs and financing of education should be carried out, to assume efficient and equitable outcomes.

And last, far more funds have to be allocated to primary education (than done hitherto).

NOTES

1. While education — taking many forms and reaching many people — is clearly a key factor of rural transformation, it must be noted that rural development is the outcome of many interacting forces. In the absence of many complementary forces, education, least of all traditional schooling, alone stimulate a dynamic transformation of rural life (Lakshmanan, 1982).
2. In India, the rates of return for education vary from 7 per cent (for higher education) to 17 per cent (for primary education), while they range between 17.2 per cent and 26.1 per cent for physical capital. This could result from the government policy of over-investing in education regardless of demand and by the type of education emphasised (Nadiri, 1972).

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SIX

Micro-Level Planning in Education: Retrospect and Prospect

L.S. Bhat

Introduction

There has now been a growing realisation that the planning process in India has been concerned largely with macroeconomic aspects of sectoral development which are not related to the development of human resources as they differ qualitatively and show varied responses to the development impulses. Concept of multi-level planning was introduced at the beginning of the Fourth Five Year Plan which reiterated the role of District as the basic unit of planning in order to prepare the State Plans more realistically within the national framework. Simultaneously, planning from the grass root level involving participation of the people in the development of local resources and creating employment opportunities for the rural poor and provision of facilities and amenities such as health, education, rural roads, drinking water facilities, etc. are introduced under the three tier system of village, development block and district as the units of planning. The two approaches are not mutually exclusive. In order to integrate the economic and social dimensions of planning, spatial approach, unlike sectoral or departmental approach has been advocated. This necessitates the preparation of development plans according to the locational and areal characteristics of different schemes of development. Human resources are location specific distributed in 557,137 rural settlements and 3,949 urban centres of varied sizes under different conditions of natural environment and resources endowments. Locations of rural settlements is a part of the *formal* or relatively stable structure of different regions and their spatial arrangement reflects the influence of topography, as, for example, the nucleated villages of the northern alluvial plains, linear pattern along the coastal plains corresponding to old sand dunes and scattered settlements in the hilly and mountainous regions. Social and economic organisation of space has been influenced by the historical political factors as well as the spontaneous emergence of a few of the human settlements as nodes; and they have an advantage over other settlements in attracting economic activities, infrastructure social facilities and amenities. The areas of influence of these nodal centres are *functional-economic* areas. In the traditional economies cultural cores based on religion, caste, language, customs, perception and behaviour centred on religious places, and in course of time they acquired other functions such as commodity exchange and other facilities and amenities. Even today, it is possible to identify the overlapping of boundaries of environmental, socio-cultural and functional-economic regions at the micro and meso levels within the States (David, 1980; Bose, 1961; Deshpande, 1986). The centres of these regions also became the centres of diffusion of ideas, and education without the efforts of intervention by policy instruments. This explains the reason for higher level of literacy as in Kerala, parts of Tamil Nadu and Karnataka.

Planning for Literacy and Education in India

India is faced with formidable problems of numbers both in literates and illiterates by census definition and by having highly distorted structure of manpower trained in the fields of natural and social sciences at different hierarchic levels of specialisation. Their distribution shows marked contrasts within and between regions and within them between rural and urban and male and female population. Development of human resources has to take a holistic view within which related attributes such as education need proper assessment of the quality and level of attainment.

Optimum utilisation of the physical resource by the community under different conditions of natural environment requires ecosystems approach for which it would be necessary to evaluate the complex relationship of place ⇔ work ⇔ folks or environment ⇔ economic activity ⇔ people as a dynamic process of regional development. Since the attributes of physical and human resources lend themselves to generalisation at different scales of regions from the micro to meso levels, development plans at micro level have to be integrated with those of regional and national levels in their forward and backward linkages.

Linguistic States and Regions —The Problem of Reconciliation

Indian population has been by and large less mobile as is evident from the enquiry at the time of census enumeration regarding the place of birth. In 1961 nearly 60 per cent of the population was enumerated at the place of birth and this has not changed much even today. However intra-state, inter-district within a State and intra-district migration are more pronounced on account of the absence of language barriers, shorter distance between the place of origin and migration for purposes of employment and relative homogeneity of the environment and resources which do not uproot the people from the mode of living and occupation. Therefore, an efficient way of integrating human and physical resource development with education and required skills would be to adopt a system of homogeneous regions (in respect of environment and resources) comprising groups of Districts or tahsils within the States and to build up regional profiles for formulating development strategies appropriate to these regions rather than using States as regions. Such a strategy of resource development aimed at the utilisation of the available manpower within each region would serve to estimate the levels of education and skill to be provided to the population. This might serve to fulfil one of the objectives of educational planning by which outmigration of both the unskilled as well as skilled manpower could to a large extent be arrested.[1]

Literacy and Educational Planning

Eradication of illiteracy itself is a location specific problem as it has to be provided almost in a ubiquitous manner in every human settlement through formal and non-formal methods of teaching. We have very little knowledge about the life circumstances at any areal level in the form in which it can be used for planning of literacy and education. Analysis of 1981 census data and Educational Survey Reports reveal sharp regional variations in literacy (rural, urban, male, female, SC and ST) (Raza et al., 1984); one of the important reasons being the accessibility to schools within walking distance from the residence. In the case of primary schools in 1981, nearly 25 per cent of the population did not have school facility within 0.5 km and these were in most parts of UP, eastern Madhya Pradesh, parts of Andhra Pradesh and coastal Maharashtra. The situation appears more dismal in the case of middle and higher secondary schools.[2] Social and economic distances appear to make these facilities more inaccessible even within the same settlement. It is also observed from empirical studies that in India education, health and other facilities reach rural settlements long after they cross the threshold level of population for locating one unit of these facilities. Thus all the three factors mentioned above point to the need for location specific planning of educational facilities in a regional context of development of human and physical resources in an integrated manner.

Micro-level Planning in Education —An Overview

There are several attempts in analysing regional variations in educational development using available data on literacy, number of educational institutions by type, distance and population served. Levels of education and access to certain sections of the society (scheduled caste, scheduled tribes) have also been studied with the same objective. Likewise, literacy and educational development and their relationship to other attributes of physical and human resource development have been analysed at the national and state levels. These studies have used secondary data aggregated to different levels of administrative units. Valuable findings about low levels of literacy and educational development in certain regions still await further study of the problem as it is specific to those regions. This is one of the missing links between regional differentiation and locational aspects of educational planning at the micro-level. Even where studies are conducted at the village level there has not been an indepth analysis of the factors that motivate different socio-economic groups of people to avail of literacy and education as a catalyst for their improvement. The inescapable conclusion that areas which are better off in agricultural development have higher levels of literacy and this has motivated the community to send their children to higher levels of education needs further testing as there are significant variations in productivity per acre and per household in different agro-climatic regions. For example, the Western Ghats region of low population density and scattered settlements specialising in forestry, and plantation economy has acquired higher level of literacy and education for which accessibility to market for the local produce and capacity of the population to avail of education and other facilities have been important. Similar growth pattern is not visible in Punjab, Haryana and Uttar Pradesh. Outmigration to metropolitan cities retaining the socio-economic contact with the place of origin has also been responsible for spontaneous response to these facilities. This is evident in the relatively developed coastal regions as well as less developed areas like the Uttarakhand in UP.

Locational studies of educational facilities started with the attempts in identification of growth centres for District Planning initiated during the Fourth Five Year Plan in 20 selected Districts of the country. The assumption was that a system of centres arranged in a hierarchy provides an efficient way of articulating distribution to and administration of regions or the attributes related to social and economic functions. Identification of a network of centres and scale of facilities appropriate to each level makes it possible for the location of facilities *a new*. These attempts lacked rigour of analytical techniques and conceptual clarity as applicable to Indian conditions. Subsequently, there have been a large number of empirical studies in District and Block level planning in which provision of social facilities and amenities in appropriate locations was the major objective (Bhat et al., 1976; Misra, 1972; Sen, 1971; Wanmali, 1970). These attempts improved the methods of giving weightages to different facilities and also in establishing the spatial association among facilities as a preliminary attempt in building spatial models of location of facilities. Limitations of the use of social facilities and amenities without considering the behavioural and economic capabilities of the population following from the development of resources of the area were also considerably overcome by modification of the analytical design from merely Growth Centre or Central Place theory and its application to comprehensive regional surveys oriented to planning. Efforts are however piecemeal and need coordination among different disciplines which have areas of complementary inputs (e.g. geography, regional and agricultural economics, statistics, psychology, sociology).

Location-Allocation Modelling has been applied in providing optimal location for educational, health and postal facilities (Hodgson, 1982). It was however recognised that such models based purely on mathematical concepts for minimising distances between locations of supply and demand fail to deal with consumer behaviour and travel patterns. Spatial interaction models are found to be more realistic as illustrated in a study to measure spatial efficiency of health centres in Salcette, Goa (Hodgson et al., 1983). Comparative study to evaluate the alternative patterns has also been made using concordance analysis (Messam et al., 1984). In its application to the study in Goa mentioned above, it was revealed that by changing one of the proposed locations of health facilities out of 420,000 more people could have access to it within 5 km of the location of health facility. Evaluation of the approach to micro-level planning as a part of the exercise in integrated area planning and locational modelling of certain facilities brings out the inadequacies of the attempts made in isolation and they need to be integrated by working out an analytical design for micro-level planning of education.

Concluding Remarks

Overgoing review of the concepts and approach to micro-level planning of education brings out the following points which merit serious consideration.

1. Planning for eradication of illiteracy as a locational problem needs micro-regional approach in which demographic, socio-cultural and economic dimension and evaluation to the extent they hasten or retard the growth of literacy. Priority areas of low levels of literacy and socio-economic backwardness have to be chosen for case studies and for evolving suitable methodology.

2. Educational planning involving all the levels of education have to be integrated in a hierarchic system of locations and regions keeping in view the development strategy for different regions and the required skills. This has political and economic implication requiring structural changes in planning process adopted so far.

3. Attempts in micro-level planning of education have been relatively few; and these have been parts of the approach to District and Block level planning. It might be possible to use the approach with modifications to focus on educational planning. 'An Expert Group may be constituted to look into this problem and to formulate the approach to the problem keeping in view the regional variations rather than evolving an uniform methodology for the country as a whole.

NOTES

1. A complementary strategy involving major structural changes of the national economy in favour of labour intensive activities is also necessary.
2. Nearly 30 per cent of the population do not have middle school within 2 km and in the case of high school the percentage of population having access to it within 4 km is not more than 50 in most parts of the country with the exception of Kerala and parts of Maharashtra.

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SEVEN

The Demand for Quantity and Quality of Children in Rural India

A.M. Nalla Gounden

Introduction

India's population is growing continuously and the growth rate is much higher than what is considered desirable. The decadal growth rate was 13.3% in the 40's, 21.6% in the 50's, 24.8% in the 60's and 24.9% in 70's. It is unlikely that the 80's have witnessed a substantial deceleration of population growth. The growth rate is high because birth rate exceeds death rate; in the decade 1941-51, birth rate was 39.9 while the death rate was 27.4; in the decade 1971-81, the birth rate was 37.2 whereas death rate was 15.0. Thus, the death rate fell by 45.25% while birth rate by 6.76%. The fall in the death rate was due to the spread of medical facilities and the control of mass-killing diseases like cholera, plague, etc. Government at the centre and states spent substantial amount of money and took organised effort to propogate small family norm and spread the knowledge of family planning techniques. Inspite of it, birth rate continues to be high, why?

Social scientists, belonging to various disciplines such as anthropology, sociology, demography and economics have attempted to understand this problem and thereby control family size. We are looking at the problem as economists. Malthus propounded his theory of population growth about 200 years ago. But only during the last 20 or 30 years, serious efforts are being made by economists, to investigate this problem; by that we mean that economists are applying their theory and tools, particularly consumer theory, to analyse the problem. The present study applies the house-hold production approach to analyse the joint determination of family size (or quantity of children) and child quality namely schooling of children in rural Indian households. In section 1, we describe very briefly the new household economics (or economics of the family). Section 2 develops formally the model and its predictions for empirical verification. Section 3 provides an overview of the data, the econometric specification of the model and presents empirical results. A final section 4 summarises the major findings of the study.

1. An Overview of New Household Economics

People get married sooner or later; they get married of their own choice. There is no compulson in the vast majority of cases. Even though Marx and Engels had much to say about family economic functions. Only recently family is attracting the attention of economists. Becker and his colleagues have played a leading role in colonising the area (of marriage and family). The current position may be described as: Economics of family or new household economics. It centres around the works of Mincer (1963), Becker (1965), Lancaster (1966) and others and is a useful and flexible framework for analysing human behaviour. It treats family as a producing unit which produces benefits of all kinds for its members. The benefits range form material goods like food, clothing and shelter to companionable and loving atmosphere; insurance at times of sickness and unemployment; security at old age; medical care and educational services for improving the quality of life. These benefits are produced by members of the household, combining market purchased goods and services with their own time in the household production.

The components of household production differ in different places and different times depending upon the levels of economic development. Over the time, substitutes for the products of household have been developed such as insurance by companies, restaurants for food, cinema for recreation, schools for education, etc. Further, these market substitutes for the family goods are less costly, perhaps due to market specialisation. In some other countries, divorce is threatening the society. Inspite of these tendencies which weaken the rationality of family, family continues to exist. The most important reason for the family is that people want to have children, their own children. Thiruvalluvar refers to this as: 'Sweeter verily than ambrosia is the gruel soused and spattered by the tender hands of *ones own children*' (Kural 64). People also want quality children; by quality we mean the characteristics of children which please their parents; such characteristics probably include good manners, income earning potentials, artistic ability, achievement which can be developed by investing time and money on children. Again to quote Thiruvalluvar, 'Among all the benefits that may be acquired, we know no greater benefits than the acquisition of intellegent children' (Kural 67). 'The greatest joy of mothers, greater than the joy of giving birth to a child, is when the child gains fair renown' (Kural 69). Thus we assume that people want to have their own children, which have no substitutes and the children to be of high quality.

The decisions to increase quality and quantity of children are not independent. The shadow price of quality is higher when the family has more children; similarly, the shadow price of the number of children is high when the quality of children is high. Some components of quality of children are exogenous to the family and not determined by the family decisions, example is public health. Education and training which form a component of quality are also provided free by the state. Family has to make a choice to send children to school. If the family budget is not enough, decision regarding the combination of number and quality has to be made; there is a trade off between the two. If the preference for quality dominates, the family will have few children, given the budget constraint; if the preference for number is stronger, the family will have poor quality of children.

Thus, family is an economic unit which shares consumption and allocates production at home and in the market as well as the investment in the physical and human capital of its members. The family is a rational maximiser of family utility. Income is an important argument in the utility function. Members of the households are not perfect substitutes for one another; they practice division of labour. They are selfish in the sense that their utility is a function of what they consume and their leisure time. In such a complex social institution, will there be consistent behaviour? Will they cooperate to increase family income? Becker argues that there is justification for the economist's usual assumption that even a multiperson household has a single well-ordered preference function. For, if one member of a household — the head — cares enough about all other members to transfer resources to them, this household would act as if it maximised the head's preference function, even if the preferences are quite different. If a head exists, other members are also motivated to maximise family income and consumption even if their welfare depends on their own consumption alone. Each beneficiary no matter how selfish, maximises the family income and thereby internalises all effects of his action on other beneficiaries. Becker (1974, 1981) has named it 'Rotton

Kid Theorem'. Studies such as Becker and Lewis (1973), Cain and Dooley (1976), Rosenzweig and Evenson (1978), Anderson (1983), Duraisamy (1988) elaborated the household production model and fruitfully applied it to several aspects of family decisions.

2. Theoretical Framework

In this section, a one period static model based on new home production approach is developed in order to analyse the family's joint decisions concerning fertility and child schooling.

Let the household utility function be (U). It is assumed to be twice differentiable, quasi-concave, and consists of three basic commodities: number of children (N), schooling per child (S) and the Hicksian composite commodity (Z):

$$U = U(N, S, Z) \tag{1}$$

Assume that each of these basic commodities is produced by the household by combining market goods (X_j; $j = N, S, Z$) and the time inputs of some or all the members (t_{ij}; $i = F, M, C$ where F-Father, M-Mother and C-Child). The linear homogeneous production functions for each j are given by:

$$N = N(X_N, t_{FN}, t_{MN}; E) \tag{2}$$

$$S = S(X_S, t_{FS}, t_{MS}, t_{CS}; E) \tag{3}$$

$$Z = Z(X_Z, t_{FZ}, t_{MZ}, t_{CZ}; E) \tag{4}$$

where E is a vector of environmental variables such as age, health, education of parents, etc. which reflect the level of technology of production process.

In developing countries like India, children's contribution to family income may be important. Hence, the family income is the sum of unearned non-labour income (Y) and household's labour income which is equal to the time of each member devoted to the market (t_{im}) times their respective wage rates (W_i). This income is spent over a range of market goods (X_j) purchased at prices (P_j) so that the budget constraint is:

$$Y + t_{Fm}W_F + t_{Mm}W_M + t_{Cm}W_C.N = \sum P_jX_j, \text{ for } j = N, S, Z \tag{5}$$

The allocation of each individual's time to alternative uses as defined in (2-4) and time to market sum to the given time constraint as:

$$T_i = t_{im} + \sum t_{ij}\ , i = F, M, C\ ;\ j = N, S, Z \tag{6}$$

Assuming that time can be converted into goods through market wage, substituting (6) in (5) and transposing to get full time constraint (V) as:

$$V = Y + T_F W_F + T_M W_M + T_C W_C N = N(P_N X_N + t_{FN} W_F + t_{MN} W_M) + NS(P_S X_S + t_{FS} W_F + t_{MS} W_M + t_{CS} W_C) + Z(P_Z X_Z + t_{FZ} W_Z + t_{MZ} W_M + t_{CZ} W_C) \quad (7)$$

Maximising the utility function (1) subject to the full income constraint (7), the first order conditions for interior solutions are derived as:

$$U_j - \lambda \pi_j = 0 \quad (8)$$

where U_j is the marginal utility of the j th commodity, λ is the Lagrangian multiplier and π_j's are the shadow prices given by:

$$\pi_N = (P_N X_N + t_{FN} W_F + t_{MN} W_M) + S(P_S X_S + t_{FS} W_F + t_{MS} W_M + t_{CS} W_C) - T_C W_C \quad (9)$$

$$\pi_S = (P_S X_S + t_{FS} W_F + t_{MS} W_M + t_{CS} W_C) \quad (10)$$

$$\pi_Z = (P_Z X_Z + t_{FZ} W_F + t_{MZ} W_M + t_{CZ} W_C) \quad (11)$$

The reduced form demand functions for the choice variables can be derived from (9) to (11) as :

$$j = f_j(W_F, W_M, W_C, P_j, Y; E), j = N, S, Z \quad (12)$$

The properties of these demand functions are obtained by totally differentiating the first order condition (8) and solving for resultant system of linear differential equations. The Compensated Wage Substitution Elasticities ($n*_{jW_i}$) can be written as:

$$\eta^*_{jW_i} = \left[\frac{(t_{iN} + St_{iS})}{\pi_N} \eta^*_{j\pi_N} + \frac{Nt_{iS}}{\pi_S} - \eta^*_{j\pi_S} + \frac{t_{iZ}}{\pi_Z} \eta^*_{j\pi_Z}\right] W_i, \quad i = F, M; j = N, S, Z \quad (13)$$

$$\eta^*_{jW_e} = \left[\frac{(St_{CS} - Tc)}{\pi_N} \eta^*_{j\pi_N} + \frac{Nt_{CS}}{\pi_S} - \eta^*_{j\pi_S} + \frac{t_{CZ}}{\pi_Z} \eta^*_{j\pi_Z}\right] W_C, \quad i = j = N, S, Z \quad (14)$$

The above equations show that each of the compensated elasticity of the jth good to wage rate is the weighted average of the other compensated demand elasticities in terms of shadow prices ($\eta^*_j \pi_j$)

The own compensated shadow price elasticities are of course negative, whereas the cross elasticities are positive for substitute goods and negative for complements. The weight applied to these elasticities are the share of the cost of good in question contributed by the household member in question.

In order to predict the sign, assume that S and Z are close substitute for N but they are themselves complement to each other. Then the sign of

$\eta^*_{jW_i}$ can be predicted as:

$$
\begin{aligned}
\eta^*_{jW_i} \text{ is positive for } & j = N; i = C, F \\
& j = S, Z; \mathrm{i} = M \text{ and} \\
\text{negative for } & j = N; i = M \\
& j = S, Z; \mathrm{i} = F, C
\end{aligned}
\qquad (15)
$$

Accounting the income change in the model, the uncompensated substitutions become relevant. The Standard Slutsky Uncompensated Wage Elasticity equations $\eta*_{jw_i}$ can be written as:

$$\eta_{jW_i} = \eta^*_{jW_i} - \mu_i \ \omega_j, \text{ for } j=N, S, Z; i = M, F, C \qquad (16)$$

where $\mu_F = \frac{T_F W_F}{V}$, $\mu_M = \frac{T_M W_M}{V}$, $\mu_C = \frac{T_C W_C}{V}$ and

ω_j = pure income elasticity

Assuming basic commodities are normal and positive income effect is dominated by substitution effect, the sign of η_{jw_i} can be predicted. The prediction implies that: (1) an increase in father's wage rate increases the demand for children and reduces the child schooling, (2) mother's wage rate is negatively related with family size and positively associated with child schooling and (3) an increase in child wage rate increases fertility and decreases the education of children. The predictions form the theoretical basis for empirical verification of the model.

3. Empirical Analysis

a) *Data, Model and Variable Specification:* In this study, district level aggregate data for rural India for 1981 are used to test the implications of the model. Data are compiled from the following sources: Census of India-1981, Agricultural Wages in India 1981-84, various issues of Agricultural Situation in India. Though data are collected for 234 districts, the non-availability of information pertaining to percentage of villages in each district having primary school, family planning clinic, etc. restrict the analysis to use only 130 districts.

Our discussion of the decision making with respect of fertility and schooling is at family level. Because most of the decisions are made at family level. But we have data aggregated at district level. We resort to aggregate data because we have no facility to collect family level data covering wide geographical area of rural India. With district level data, intra-district differences will be suppressed, only inter-district differences will be captured by the model. Studies such as Resenzweig and Evenson

(1977), Conger and Campbell (1978), Yamada and Yamada (1984) have used aggregate level data.

In empirically estimating the demand equations (12), the question is whether to specify a structural model and estimate it using simultaneous equation method, or derive a set of reduced form equations and estimate them by single equation method. The justification for specifying structural equation model is that the household production models are general equilibrium models where a set of family decisions are determined simultaneously in a joint utility maximising framework. Studies such as Rosenzweig and Evenson (1977) Conger and Compbell (1978), Yamda and Yamda (1984), Duraisamy (1988), etc. apply structural estimation method. Further it is evident from equations (9) and (10) that fertility and schooling of children are inter-related through their shadow prices. However, estimation of structural relationships among family choice variables are not generally identified, the exogenous variables and constraints that condition one class of family behaviour are also likely to condition other form of family behaviour. Hence, a set of reduced form equations are estimated in some of the studies (Banskota and Evenson, 1978; Shanmugam, 1987).

In this study, both approaches are used. First, the structural model is specified and then the corresponding reduced form equations are derived. The reduced form equations are estimated by Ordinary Least Squares (OLS) and the structural model is estimated using Two Stage Least Squares (TSLS).

The two structural equations to be estimated are specified as:

$$N_i = \alpha_{10} + \alpha_{11} s_i + \beta_{11} W_i + \beta_{12} X_i + \beta_{13} X_i + \beta_{14} Z_{Ai} + U_{1i}$$

$$S_i = \alpha_{20} + \alpha_{21} N_i + \beta_{21} W_i + \beta_{22} Y_i + \beta_{23} X_i + \beta_{24} Z_{Bi} + U_{2i}$$

where N = CWR1, CWR2; S = CENR; W = WAGEM, WAGEF, WAGEC; Y = LAND; X = PRIM, PRIMF, MATM, MATF, SCT, MUS, RUR; Z_A = MARF, FPC; Z_B = PRIM, MID;

α's and β's structural paramerers to be estimated
U's the stochastic disturbance terms
i the ith household ($i = 1, ..., n$)

Each of the two simultaneous equations satisfies the rank and order conditions for identifiability. The assumptions underlying the variable exclusion restrictions implied in the structural model are somewhat arbitrary, but defensible and necessary to get identification.

The corresponding reduced form equations are derived as:

Table 1 Variable dictionary, means and standard deviations — rural Districts of India 1981

Variables	Definition	Mean (SD) (130 districts)	Mean (SD) (234 districts)
Endogenous			
CWR1	Children (0-4) per 100 women (15-44)	62.243 (9.776)	62.030 (9.803)
CWR2	Children (5-9) per 100 women (15-44)	69.335 (11.364)	69.290 (10.725)
CENR	Percent of children (0-14) enrolled	26.934 (9.042)	27.501 (10.517)
Exogenous			
LAND	Average (operation) land holding	2.484 (1.379)	2.558 (1.412)
WAGEM	Daily wage of Adult Male (in Rs.)	6.808 (2.710)	6.530 (2.602)
WAGEF	Daily wage of Adult Female (in Rs.)	5.401 (2.384)	5.233 (2.081)
WAGEC	Daily wage of Children (in Rs.)	3.938 (1.538)	3.734 (1.448)
PRIMM	Percent Male (15 & above) completed primary school	16.779 (6.768)	15.776 (6.902)
PRIMF	Percent Female (15 & above) completed primary school	7.334 (5.272)	7.094 (5.728)
MATM	Percent male (15 & above) completed middle/matriculation school	17.975 (7.896)	18.662 (8.397)
MATF	Percent female (15 & above) completed middle/matriculation school	5.223 (5.544)	5.762 (6.742)
MARF	Percent female (15-44) married	82.152 (9.602)	82.098 (9.704)
SCT	Percent SC & ST's in total population	27.507 (12.841)	28.432 (16.991)
MUS	Percent Muslim population in total	7.390 (9.773)	7.598 (9.562)
RUR	Proportion of rural population to total	0.802 (0.122)	0.809 (0.131)
FPC	Percent villages in district having family planning clinic	1.507 (4.266)	—
PRIM	Percent village in district having primary school	72.081 (19.265)	—
MID	Percent villages in district having middle school	22.753 (17.419)	—

Table 2 Unrestricted reduced form OLS coefficient estimates: fertility and schooling, rural Indian Districts 1981

Independent variables	Dependent variable					
	CWR1	CWR2	CENR	CWR1	CWR2	CENR
1	2	3	4	5	6	7
LAND	2.023	2.158	–0.891	1.734	1.506	0.230
	(4.667)	(4.307)	(3.496)	(5.554)	(4.420)	(1.101)
WAGEN	–0.768	–1.040	0.365	–0.107	–0.232	0.387
	(1.487)	(1.742)	(1.201)	(0.320)	(0.635)	(1.723)
WAGEF	1.414	1.220	–0.118	0.781	0.234	–0.533
	(1.859)	(1.388)	(0.264)	(1.695)	(0.465)	(.1727)
WAGEC	–0.466	–0.281	0.150	–0.137	0.348	0.740
	(0.608)	(0.318)	(0.330)	(0.288)	(0.670)	(2.318)
PRIMM	0.025	0.004	0.098	–0.026	–0.107	0.045
	(0.227)	(0.032)	(1.503)	(0.278)	(1.043)	(0.711)
PRIMF	–0.125	0.104	0.660	0.095	0.192	0.754
	(0.622)	(0.449)	(5.572)	(6.590)	(1.073)	(6.830)
MATM	0.190	0.324	0.388	0.009	0.119	0.308
	(1.621)	(2.386)	(5.616)	(0.128)	(1.452)	(6.109)
MATF	- 0.023	- 0.101	- 0.175	- 0.135	- 0.244	0.145
	(0.078)	(0.287)	(0.978)	(1.068)	(1.762)	(1.706)
MARF	0.648	0.828	- 0.173	0.692	0.764	- 0.264
	(7.130)	(7.880)	(3.234)	(10.828)	(10.950)	(6.162)
SCT	0.047	0.050	- 0.010	0.029	0.047	- 0.032
	(0.939)	0.859)	(0.350)	(1.071)	(1.572)	(1.734)
MUS	0.107	0.175	- 0.191	0.141	0.127	- 0.171
	(1.924)	(2.729)	(- 5.852)	(3.416)	(2.825)	(6.153)
RUR	- 0.965	1.963	0.563	0.028	4.410	- 0.335
	(0.212)	(0.373)	(0.210)	(0.966)	(1.357)	(0.168)
PRIM	- 0.037	0.026	- 0.594	–	–	–
	(0.964)	(0.580)	(2.579)			
MID	- 0.006	- 0.058	0.112	–	–	–
	(0.114)	(0.874)	(3.312)			
FPC	- 0.204	- 0.227	- 0.121	–	–	–
	(0.835)	(0.803)	(0.844)			
Constant	2.398	- 13.151	31.527	- 3.764	- 4.699	37.111
F	18.018	18.306	55.782	39.074	39.777	128.866
R^2	0.703	0.706	0.880	0.679	0.681	0.874
N	130.	130.	130.	234.	234.	234.

(figures in the paranthesis indicate absolute t values)

$$R_{ji} = a_O + a_{1j}W_{ji} + a_{2j}Y_{ji} + a_{3j}E_{ji} + e_{ji} + e_{ji}, j = N, S; i = 1, ... n,$$

where R is a vector of endogenous variables, W, Y and E form the complete set of non-overlapping exogenous variables as defined above and a_{kj} ($k = 0, 1, 2, 3; j = N, S$) are reduced from coefficient matrices, and e_j is a vector of disturbance terms.

The detailed definition of the variables and their mean and standard deviations are presented in Table 1.

b) *Reduced-Form Estimates:* (i) Fertility equation. The OLS reduced form parameter estimates of two alternative measures of fertility (CWR1, CWR2) are presented in columns 2 and 3 of Table 2 respectively. The coefficients of LAND (a proxy for income) confirm the predictions of the theoretical model that children are normal goods not inferior. The wage variables (WAGEM, WAGEF, WAGEC) have opposite effect contradictory to the predictions of the model, but t values are not substantial at 5% significance level.

As far as control variables are concerned, PRIMM, PRIMF appear to have little relation with demand for quantity of children. MATM and MATF are associated positively (income effect) and negatively (better knowledge and information) with demand for children respectively. MARF effects family size positively and it is statistically significant at 1% level in both CWR1 and CWR2. MUS shows a positive relation and it is statistically significant at 1% level in CWR2. Other variables have little impact on fertility.

(ii) Child schooling equation. The OLS results of child education are shown in column 4 of Table 2. The coefficient of LAND shows a negative impact on CENR. Though it is contrary to the prediction of the model, it is expected that the land holding may compel rural children to employ in farm so that demand for schooling of children may decline. The wage variables are not statistically significant at 5% level.

Among the control variables, PRIM, PRIMF and MATM are related positively with CENR. The coefficients of PRIMF and MATM are statistically significant at 1%. It implies that one percent increase in PRIMF and MATM increases the child schooling by 0.54% and 0.77% respectively. Hence it is concluded that parent's education is a major factor in determining education of children. MARF and MUS have negative relation and they are statistically significant at 1% significance level. The presence of PRIM shows a negative whereas MID gives a positive association with CENR.

For comparative purpose, the OLS estimates of CWR1, CWR2 and

Table 3 Two stage least square (tsls) estimates: fertility and child schooling, rural Indian Districts 1981

Variables	CWR1	CWR2	CENR	CENR
CWR1	–	–	– 2.89	–
			(3.544)	
CWR2	–	–	–	– 0.226
				(3.919)
CENR	0.059	– 0.506	–	–
	(0.116)	(0.936)		
LAND	2.034	1.703	–0.258	– 0.355
	(3.319)	(2.631)	(0.793)	(1.267)
WAGEM	– 0.968	– 0.875	0.177	0.160
	(1.759)	(1.506)	(0.538)	(0.533)
WAGEF	1.686	1.189	0.087	– 0.033
	(2.269)	(1.516)	(0.187)	(0.081)
WAGEC	– 0.601	– 0.219	0.200	0.262
	(0.7880	(0.273)	(0.459)	(0.666)
PRIMM	0.026	0.054	0.100	0.093
	(0.215)	(0.418)	(1.520)	(1.556)
PRIMF	– 0.137	0.442	0.675	0.733
	(0.372)	(1.333)	(5.880)	(7.191)
MATM	0.188	0.54	0.452	0.470
	(0.796)	(2.095)	(6.198)	(6.933)
MATF	– 0.033	– 0.192	– 0.325	– 0.335
	(0.114)	(0.624)	(2.302)	(2.596)
MARF	0.680	0.743	–	–
	(5.069)	(5.225)		
SCT	0.064	0.046	– 0.033	– 0.005
	(1.268)	(0.874)	(0.117)	(0.215)
MUS	0.123	0.0679	– 0.167	– 0.158
	(1.030)	(0.626)	(5.176)	(5.339)
RUR	– 0.246	2.331	0.494	1.210
	(0.054)	(0.483)	(0.182)	(0.490)
PRIM	–	–	– 0.075	– 0.058
			(3.249)	(2.770)
MID	–	–	0.111	0.099
			(3.228)	(3.117)
FPC	– 0.269	– 0.297	–	–
	(1.068)	(1.114)		
Constant	– 5.458	2.149	33.887	30.230
R^2	0.693	0.747	0.870	0.890
N	130.	130.	130.	130.

(figures in paranthesis indicate absolute *t* values)

CENR for 234 districts excluding PRIM, MID and FPC are reported in columns 5, 6 and 7 of Table 2 respectively. Since PRIM, MID and FPC are control variables, their exclusion will not affect the analysis. The results are more or less the same.

c) *Structural Estimates:* In order to explore the interaction between the demand for child quantity and quality, the structural equations are estimated by TSLS. The results are presented in Table 3.

The TSLS estimates of fertility equation show that there is no significant association between fertility and schooling. However, in CWR2, the relationship is negative. On the other hand, the estimates of schooling equation confirm that CENR is negatively related with CWR1 and CWR2, indicating trade-off between demand for quantity and quality of children. The structural coefficient estimates of most of the exogenous variables remain the same as that of the reduced form estimates and so the effect of the other variables are not discussed here.

4. Summary and Conclusions

This paper applies the household production model to analyse the family's joint decisions concerning the demand for quantity and quality children. Based on new consumer theory, a theoretical model has been developed and its comparative static properties are examined. The implications drawn from the model are tested with district level aggregate data for rural Indian households for the year 1981.

To test the relationship, both structural and corresponding reduced form equations are specified. The structural equations are estimated using TSLS, while the reduced-form equations by OLS. The estimates give more or less similar results.

The major results are: demand for children is a normal good. Though LAND is used as a proxy for income, it compels rural children to work in farm so that landholding has negative association with child schooling. Surprisingly, the wage variables are not significant in determining the choice variables. Education of parents plays a significant role in determining both quantity and quality of children. The presence of percentage of married women (15-44), scheduled castes and tribes and percent of Muslim population to total have significant and positive effect on fertility and negative impact on schooling of children. The more the percent of villages in a district with middle schools, more will be the children enrolled in schools.

Finally, the structural estimations confirm that there is a trade-off between the demand for quantity and quality of children in Rural Indian Households.

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EIGHT

Regional Perspectives on Education-Poverty Linkages: Implications for Removal of Disparities

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Very often people tend to believe that poverty leads to non-education and that non-education leads to poverty. Both these assertions are not even qualified. Sometimes very simplistic arguments are offered in their favour. The first assertion is explained in terms of opportunity cost that is considered prohibitive for poor parents for sending their children to school even if they realise the importance of education. For the second, the general explanation is that education raises one's earning capacity (the little is said about employability conditions of the person or employment capacity of the system). Based on the second belief, it is often suggested that education, if provided somehow can remove poverty.[1] Education is thus seen as an important determinant of poverty eradication (and education can somehow be provided even when poverty does not get eradicated).[2]

Both the views have scant theoretical foundations. But these very approaches which ignore to view education as a part of the bigger totality, are adopted to forge (spurious) linkages between education and removal of poverty. It has to be realised that it is only in a certain milieu that if one is 'suitably' educated, he may increase his earning through (wage-or self-) employment. This small bit cannot lead to the conclusion that if everybody is equally educated in the same trade, everybody's earning will rise. It may just be the contrary. Without realising this fallacy of composition, some people jump to use whatever data come to their hand. Thus, in a cross-sectional study across states, for example, Jain (1987, pp. 118, 166) found education index to be positively related with poverty. Rather than question this counter-intuitive result he jumped to conclude that this explodes one of the myths that 'improvement in literacy rate or education in states helps in poverty eradication.[3] One is also reminded of Sen's comment (1966) on Harbison-Myers' index of human resource development (1964) that one can always choose a weighting pattern for components of the index and can maximise the correlation between the index and the GNP per capita.

In a much more careful study, Rao, Gupta and Sharma (1986) consider 59 NSS regions spread all over the country and use an assorted set of institutional variables including literacy rates. They find that significance/non-significance and positive/negative sign of rural literacy rate change from one category to the other if the basis of computing rural poverty ratio is changed from calorie intake to per capita expenditure. They have however tried to interpret the results in a very cautious manner.[4]

But the whole question is: how much reliance can be placed on definition-sensitive regression exercises that have little theoretical basis?

Exercises relating literacy and poverty are poor cousins of those that sought to assess the contribution of education to growth of GNP or establish the links between education and GNP. When education is grafted for extraneous reasons in a system, there is no reason to resolve it as a causal factor this way or that, particularly through regression exercises. Moreover, there is little justification for using cross-state or cross-region regression equation, referring to a point of time, for purposes of attempting 'prescription' for any state or region. Still further, poverty ratio is stock concept in which only the number of people below poverty line is counted. In a number of other studies, gross enrolment ratio is often used. Not much point can be gained by using these ratios which are found to be as high as 182 and when one is not sure about the motonicity relation between the actual enrolment ratio and data-based enrolment ratio.

We have, therefore, not opted for such exercises. Instead, we have done a simple theoretical modelling in the framework of entitlement approach as developed by Sen (1981).

II. In fact, poverty situation cannot be studied without making reference to mode of production and production relations in which certain groups of people are forced to suffer. But this can be a within-region (or within-nation) approach. Between-region approach is developed only in international context. We, therefore, go for region-within-nation approach where the region is small enough not to influence the national scene in a big way. In our scheme, education appears at the tail end.

Poverty is a function of income distribution or its parameters. In general, only a part of the distribution is taken into consideration.[5] In fact, poverty is another name for illfare which depends, as does welfare, on mean income and inequality in distribution. Under the assumption of invariant relative distribution, mean income can be taken as an adequate measure of the level of poverty.[6] This is of course suggestive of efficiency of growth in reaching all people in the region and thus believes in poverty removal through growth. Yet, it is a meaningful way of looking into regional development scene.

Let us further note: while whether one's level is low or high is to be judged from the angle of need (or some normative prescription), whether it is lower or higher is to be judged from a scalar measure of vector (i.e. some descriptive measure) or from its position vis-a-vis those of others in the vector. There can be a number of layers at which the issues can be clinched right from intra-family layer to international layer. As indicated earlier, in our case, it is the inter-regional layer reduced in the form of region-within-nation (as individual-in-market).[7]

III. Let us consider a nation N with its region-members r ($r = 1, 2, ..., n$). Let each region r have the same level of income $Y_r = Y$ which is low as compared to normative prescription Y*.[8] All regions and the nation as a whole suffer from illfare. The nation cannot help out a region. There is no go but to raise the level of production by developing resources — human and material. In case, the present state of affairs is the most developed one, the situation is hopeless.

However, the regions may be in different positions in the income scale. Then, there is an additional loss of welfare due to presence of inequality or what may be called relative poverty. These statements, one may see, are simple extensions of the framework in which society consists of individuals and which assumes generally acceptable individual welfare functions as well as mildly egalitarian aggregation schemes. Though substitution for individual by household is normally not questioned, that by region would be. Yet the tradition of developing theoretical framework in terms of individual is due to its neatness. So, we also start with individual. We however abandon the scalar terms income and consumption and instead make use of commodity vector which allows inclusion of labour power as well.

Let us consider the stage when exchange system or the modes of transfer had not evolved. A person's income was his own output produced with the help of natural resources. Thus, his entitlements — all possible vectors of commodities he could own/possess — depended upon his productive capacity (as conditioned by environment). Suppose he begins with the possession of vector y, uses vector y^j as input, produces y^o as his output and thus ends with the final vector of possession y^q. Then, we obviously have:

$$y^q = y - y^j + y^o$$

If f is production mapping characterising production possibilities, then

$$y^o \in f(y^j)$$

Further, if we do not mind writing

$$y^q = F(y)$$

then we have

$$F(y) = [(y - y^j + y^O)\ y^j \leq y \text{ and } y^O \in f(y^j)]$$[9]

Now let us consider the stage when man becomes member of a society in which voluntary transactions could take place. He can now exchange his possessions with those of others. Suppose he sells out y^s and buys y^b, then his final possession is:

$$y^t = y - y^s + y^b$$

where y^s and y^b are related through some real valued function which can, say, express the idea that the cost of purchase is not greater than the receipt from sale. In other words,

$$g(y^s, y^b) \leq 0$$

The trade entitlements $T(y)$ could be formally written as

$$T(y) = [(y - y^s + y^b)\ \ y^s \leq y \text{ and } g(y^s, y^b) \leq 0]$$

Own production and purchase for consumption are the two activities that characterise our primitive system. The exchange entitlement $E(y)$, taking into account both transformation (exchange with nature) and trade (exchange with man), can be written together in the following form:

$$E(y) = [(y - y^j + y^O - y^s + y^b) \mid y^j + y^s \leq y, y^O \in f(y^j) \text{ and } g(y^s, y^b) \leq 0]$$

This system does not include the situation in which purchase is also made for production purposes. It does not accommodate instruments of a welfare-oriented state such as taxes, subsidies, social security benefits or practices that are conventionally prevalent in the society such as charity. These can very well be accommodated through mappings g and f.[10]

The extension of the framework for regional analysis is fairly easy. Changing y by Y_r is sufficient. Production, trade, statutory inter-regional transfers (or nation to region transfers) can all be treated properly.[11]

IV. Let us consider a region, say, Nagaland. Given the level of development of resources (including technology), the region's production entitlement set of endowment vector Y_r, $F(Y_r)$, is given by the area below the curve OAB in Fig. 1. Given the national inter-commodity exchange equal to tan θ with $\theta = \angle$ CDO, the exchange entitlement set $T[F(Y_r)]$ is provided by the area below the line (OCD). The region is said to be poor if the intersection of non-poverty set and entitlement set is a nullset. Thus, if non-poverty set is enclosed by the area EPF where Y^*_r represents the vector of normative minima of commodities (including literacy), the region r can be said to be poor.[12]

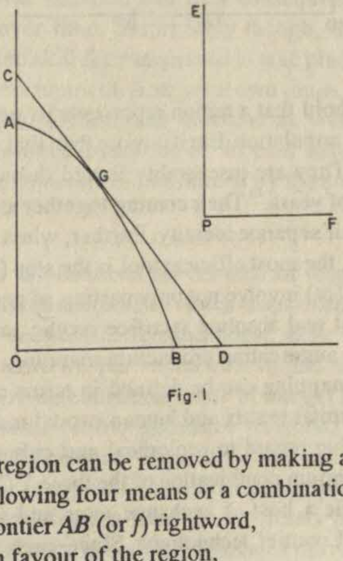

Fig. 1

Poverty of the region can be removed by making available Y^*_r to it. It can be done by following four means or a combination of them:

i) extending frontier *AB* (or *f*) rightword,

ii) tilting *CD* in favour of the region,

iii) going for cheaper rationing device, and

iv) wiping out shortage of commodities by free transfers.

In a federal system with interventionist national state, the region (say, Nagaland) can be helped out without absolute sacrifice. This can be effected by the people (as they do in a family). But mostly it is through the state mechanism that the steps (iii) and (iv) are taken. These steps are explained in Fig. 2. Exchanging *HP* amount of commodity 1 by *GH* amount of commodity 2 is the step (iii). Providing *KP* amount of commodity 1 is the step (iv). Ordinarily, step (iii) is undertaken in normal times and step (iv) in calamities.

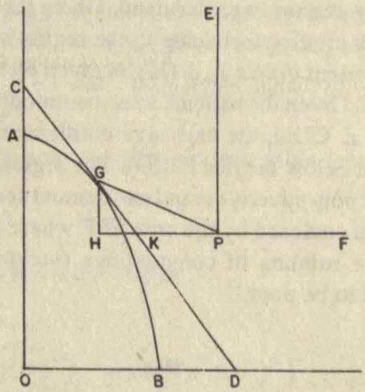

Fig. 2

V. Generally we hold that a region represents its geography and sometimes talk about its population. But it is more than that. It represents people and their habitat. They are inseparably linked through interaction over countless number of years.[13] Their coming together as a nation should not mean an end to their separate identity. Further, when a nation has a large number of regions, the most efficient tool is the step (i). It is just possible that steps (iii) and (iv) involve not only parting of genuine 'superfluous' portion of cake but real absolute sacrifice on the part of some regions. Step (i) does mean augmenting production mapping.

A production mapping can be defined in terms of natural resources matrix, physical capital matrix and human capital matrix. For maximum production (with due regard to ecological and cultural constraints), we may require an optimum combination of the three.[14] Of course, under this simple statement lie a host of exchange rates and substitutions except when we assume Leontief technology. Since each region has its own specific environment, we should develop synchronous physical and human capital matrices. While all non-land factors can move as freely as goods, human capital should not be imported in a big way because this activity involves 'people'. Assimilation of 'alien' people takes time. Despite development of communication, we may not be at that stage where everyone is equal for us. This has been eloquently suggested by the events taking place around us. In other words, human capital does not represent soul-less machines and transformation of man will take much longer than that of material. Therefore, human capital matrix has to be developed regionally so long human material is regionally available.

Now, it is through human capital or manpower matrix that education can matter. In case, there is mismatch between manpower demanded by economic sectors and manpower supplied by education sector,[15] on either side, development will suffer on technical grounds. The regional mismatches cannot be wiped out by overall national matches.[16] So, the care has to be exercised that regional mismatches are in a narrow range. Education has therefore not to be expanded in response to various pressures as has been the case in the past. Educational planning has to be largely guided by manpower needs so that the absorption of people does not become an insoluble problem.

It has to be stated rather categorically that general education at the higher level had a great inflation and as a consequence its value got considerably eroded over time. Surprisingly though, the wisdom does come from our own past: skill formation used to take place at much larger scale than scholastic development. And in our own times, Gandhi pleaded education through work. Educational imitation as well as imitational education are both injurious. Education for its own sake, particularly at higher level, cannot be undertaken or afforded by the society except for a few.

VI. Now what are its implications for removal of disparities between regions? It is a relevant question. But which disparities are we talking about: educational or economic? If educational, how do we measure them? Very often in terms of per capita educational expenditure, per student state expenditure on education, share of budget spent on education, per capita amount of central assistance received, student-teacher ratio, etc. These single-dimensional disparities, left to themselves, are not even amenable to proper interpretation let alone prescription. In fact, they unnecessarily divert our attention from the essentials of development. Differences and diversities are mistakenly translated into disparities. Two regions (or two persons) should not be compared in such a sterile manner. Wiping out difference in the name of disparities would be as improper as maintaining disparities in the name of differences.

Disparities are often product of inequitous valuation ot services, restrictive institutions such as private property in place of communal property, etc. and not so much of natural differences. They owe their origin to our so-called 'civilisation'. Can we change them and if so, how? These are the questions we have to address ourselves to. But the least that is certain is that manpower matrices cannot be the same across regions.

If at all regional disparities are to be discussed, they have to be reduced to a common denominator, that is, welfare. This has not to be in respect of each of the components or determinants. It is not a simple exercise. Yet let it be emphasised that disaggregation and aggregation have been misplaced in our traditional analysis on the theme. Therefore, we suggest regional manpower approach.

NOTES

1. Obviously this has reference to a person/household rather than a region.
2. The missing links which are so very clear are usually ignored.
3. There is no suggestion for reducing literacy in order to reduce poverty.
4. The authors point out that one cannot expect an immediate relation between literacy rate and income generation for the poverty population because education at the primary and secondary levels does not have a clear vocational bias and the majority of the literate probably belong to the population above the poverty line who can afford to send their children to school.
5. This is true of so-called measures of absolute poverty. In measures of relative poverty (i.e. inequality) the whole distribution is taken into account.
6. In fact, in the measurement of inequalities, each smaller unit is considered in relaiton to other members of a bigger unit. The extent of measurement is always underestimated due to presence of intra-unit inequalities.
7. We are not using the word country but nation, for our region is not purely a geographical concept.
8. Each region is assumed to have the same number of people. Or income may be considered in per capita terms.
9. Obviously this is an insulated position where region can be considered to be a large family having no interaction with outside world.
10. That in most real economies entitlements may not be so well-defined because of vagueness in many areas such as property rights, should not distract us from making the use of this approach.
11. In regional terms, the difficulties indicated in note 10 can be visualised in terms of sharing of river water, distribution of electricity or royalty rights of mineral wealth.
12. Non-poverty set is really welfare set because a bundle containing among of any commodity less than that in Y^*_r should develop a feeling of illfare. However Y^*_r may not be the same for all persons/regions.
13. A clear analogy is family which is not just an assemblage of a few persons.
14. One may also think of production that removes poverty instead of maximum production. This way we can focus on such norms as may be consistent with ecological considerations and put limit to growth.
15. Education is also an economic sector and as such claims good chunk of

self-input.

16. For simplicity we have assumed that there is no free flow of manpower from one region to another or from one sector to another.

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NINE

Spatial Locational Pattern of Educational Institutions in India: A Study of Divergence between Optimal and Actual Patterns

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I. Introduction

For optimum utilisation of the services of educational institutions, it is essential that their spatial location patterns satisfy certain criteria and their locations fit well into the spatial contours and temporal patterns of general activities of the economy. Although considerable literature on the optimum location of industrial units exists, no systematic attempt has been made to develop a similar theoretical framework for deciding the location of educational institutions. It is, therefore, not surprising that the educational institutions have been established on an ad hoc and haphazard basis, having neither conceptual nor policy framework for the spatial allocation of educational activities according to the demographic structures and the development needs of the spatial units of the nation. Consequently, numerous distortions have surfaced in the educational field. Many institutions have continuously experienced pronounced deficiency of demand for places, while other institutions find it extremely difficult to cope with the pressure of numbers. Thus, excess demand and excess supply exist simultaneously at most of the levels and types of educational activities. Similarly, the specific locations of numerous institutions have, at times, become a major obstacle in attracting and/or retaining students, and operate with inadequate physical and financial resources, competent teachers, and motivated and able students, leading to the supply of poor quality education to a sub-optimal number of students. As against this, there exists a considerable degree of concentration of teaching resources, infrastructural facilities and good quality and highly motivated students in a few selected centres, especially in metropolitan areas.

The dichotomous and distorted educational structures have come into existence mainly due to the absence of an explicit locational theory with respect to educational activities and an associate policy framework that would have followed from it. In this study, an attempt has been made to develop a theoretical framework for the determination of the location of educational institutions in order to derive the optimal pattern of institutional location in India. An attempt has also been made to work out criteria to determine the degree and direction of the divergence of the actual from the designed pattern of institutional location.

II. Some Observations on the Historical Determination of the Locational Pattern of Educational Institutions in India

On the eve of independence, education was envisaged to be the single most important catalyst of socio-economic change. This warranted investment in education per se, and its development ahead of the rest of the economy. Educational development was, therefore, required to precede rather than follow or even synchronise with the development of the economy. The imperatives for education to develop even ahead of the growth of the economy also emanated from the special nature of interrelations between education and the production sectors of the economy, and the long lead-time involved in the production processes of education (Prakash, 1977). Public policy, therefore, laid great emphasis on (i) the expansion of the capacity of the existing institutions. (ii) establishment of new institutions in areas where the facilities fell short of requirements or no facilities existed at all, and (iii) stimulation of private initiative and enterprise to establish educational institutions. In fact, a good deal of educational expansion in independent India had occurred due primarily to the private initiative and enterprise. The decision makers had either taken the existence of adequate private demand for education at each location for granted or they had trusted the Say's Law of markets that the creation of supply itself would lead to the sprouting of private demand for education at each location in due course. Consequently, the economic viability or size optimality did not govern the location decisions of the education institutions.

It is, therefore, natural that the educational institutions have been located wherever some public figure or prominent person(s) could arrange financial and/or physical resources in whatever quantity either from private or public or both the sources for starting new educational institutions (Prakash, 1977; Blaug et al., 1969). Adequacy or otherwise of these resources was not considered to be a constraint to the starting of the new institutions as the qualitative aspects were neglected in the earlier phase of quantitative expansion during the fifties and sixties. A fond hope might have also been nursed that, as the resource base of the economy rises with its development, resources required for qualitative improvement will possibly be mobilised for education in future. In any case, most of the educational institutions came into existence due mainly to political pressures, pull and push factors. Whereas the sound location decisions would have required detailed analysis of a variety of factors associated with a large number of alternative sites distributed over several localities, actual location decisions were arrived at almost instantaneously with only one or two sites, falling usually within the constituency of some influential political representative of the people of the given area considered, and who acted as the chief promoter of the educational enterprise... (Blaug et al., 1969). The location decisions probably conformed to such criteria as (i) the familiarity with one's own constituency/area, (ii) desire to save both time and effort involved in the detailed evaluation of the alternative sites for facilitating timely formulation and implementation of projects, and (iii) easy accessibility to and control over the centre of managerial and administrative decisions of the educational institutions. A certain degree of randomness had also governed the location decisions. The haphazard and ad hoc nature of these location decisions had led to sub-optimal location patterns of educational institutions. In the absence of a well conceived and predetermined policy frame random patterns of decisions have led to a state in which 'there are many institutions which compete for a few students and there is no or few institutions in many areas which have many students' (Prakash, 1977, p. 225). For example, in 1964-65, 52.6 per cent of the colleges of general education had less than 500 students, 35.6 per cent had less than 300 students, and 11 per cent had even less than 100 students on their rolls (National Commission on Education, p. 351). Consequently, a large number of institutions, both private and public, including those of higher learning, are not viable due to their sub-optimal size. Besides, most of these institutions supply poor quality education due primarily to their inability to attract sufficient number of students and teachers of calibre, motivation and background.

The above conditions have been brought about by the absence of theory of location of educational activities which could have furnished an appropriate policy frame to the public authorities. It is, therefore, imperative to develop a theory of location for education in order to furnish an appropriate and adequate policy frame. This study is a modest attempt in this direction.

III. Features of Education Relevant for Locational Decisions

1. Unlike the establishment of industrial units, the setting up of an educational institution may be inspired by motives other than just the profit maximisation or cost minimisation. If the decision making body is the government or a public authority, objectives of equity, welfare and development may impel or propel it to establish educational institutions at spatially diffused locations. Education may specifically be used as: i) an equalizer of economic opportunities among different strata of society; ii) a corrective for existing inequalities of regional development; iii) means of economic development in general and human resource development in particular to meet the manpower needs of the economy at different spatial locations at the given point of as well as through time; iv) a means to develop responsible citizens and to forge national integration; and v) a catalyst of attitudinal and behavioural change.

For the private suppliers of educational facilities, the objectives may include promotion of vested interest, public service, and/or private profits.

Degree, nature and direction of influence of these objectives on decision making would have a bearing on the locational patterns.

2. As in other production enterprises, the fixed costs of education do not vary with every change in output. In other words, total fixed cost of education remains invariant to rises in levels of output in a relatively large range. Besides, the structure of costs in educational institutions have the following important features:

(a) fixed cost as the proportion of total cost in developing economies like that of India is relatively low. This may, however, be due to the dilution of the quality of stock inputs and poor infrastructural facilities, at least in the initial phases of quantitative expansion (Prakash, 1989);

(b) more than four-fifths of the total variable cost is accounted for by the wages and salaries paid to the staff, teaching as well as non-teaching, whereas chalk and talk remain the dominant instruments of educational technology;

3. There is a certain range within which capacity as well as its utilisaton can be varied without a corresponding change either in total variable or fixed costs. Beyond this range, however, this flexibility does not operate unless the quality of the educational inputs, and hence, quality of output of service is compromised. Economies of scale are relatively

high while the diseconomies of scale tend to be internalised both into inputs and output.

4. Supply of the basic raw materials, that is, the students, is 'inexhaustible', whereas a large proportion of its output is required by the education sector itself as: i) inputs of students' time into its successive stages of production, ii) teachers and iii) other supportive staff.

5. There is a pyramidic structure of educational facilities, having a large sized elementary level education at the base, which tends to narrow down as we move to successive higher levels of education. Successive stages are hierarchically interacting and interlinked. Consequently, any enlargement of the base leads to a corresponding expansion at the successive higher levels, though the upward flows tend to become thinner with each movement from lower to next higher stage.

Further, while elementary education may be treated as a 'basic good' which will warrant its supply to be arranged on 'normative' basis, higher levels of education of different types may be considered to be constrained by usual economic considerations such as rates of return on investment, and hence, resource constraints, manpower requirements, and/or social demand for education;

6. Highly specialised and higher level education may be 'notionally' imported, if students are sent abroad for further studies and training, and if their return to home country after the completion of their education and training is ensured. Similarly, certain levels of education may be 'exported' by admitting and training students from abroad. Exports and imports of the output of education is also feasible. The former is euphemistically called 'brain drain'; the latter may correspondingly be dubbed as 'brain gain'.

7. Education is a 'durable good' whose production is spread over long time as it involves long gestation periods and the flow of services from education is distributed over an even longer period.

8. The market for the output of education is spread almost throughout the length and breadth of the country; the higher the level of education and more specialised it is, greater is the spatial spread of the market, while the absorption of output of lower levels of education may depend relatively more on local factors.

IV. Towards the Location Theory of Educational Activities

The hierarchical structure of education may furnish the broad contours of the base for the evolving of the theory of location of educational activities.

As a first approximation, the hierarchy of education may be postulated to consist of four distinct stages:

x-1: elementary education classes I-VIII,
x-2: high school and secondary education classes IX-XII,
x-3: general higher education BA/BSc and higher classes,
x-4: professional and technical education.

The hierarchical flows of students into these stages may be indicated as in Fig. I.

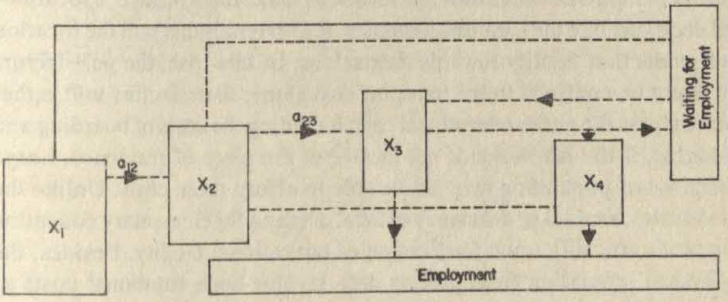

Fig. 1

These hiereachical interrelations may also be captured by the input-output coefficients in a manner analogous to Leontief's input-output model (Prakash, 1976, pp. 146-47): 'Educational system is similar to an inter-industry system of an economy. Each educational process or activity can be assumed to be associated with the production of a given level and type of education and all the educational processes, taken together, can be taken to constitute a system of close inter-dependencies. Each lower process feeds the next higher one with the input of students whereas the higher processes supply teachers, administrators and other ranks to the lower ones. Each lower process uses a variety of inputs, both human and material. These inputs are the services of students, administrators, teachers and other ranks and those of material goods such as buildings, equipment, books and journals. Output of these processes is the amount of education that the students acquire during the period that they spend in the educational institutions'.

Location of Elementary Education —Activity X-(1)

In the conventional theory of location of industrial production units, the source of raw materials and the market for the disposal of output act as the pull and push factors. In the case of elementary education, it is the population of 6-14 year age group who constitute the raw materials of educational production processes. Total population of these ages constitute the cess-pool of supply of students as raw materials to be processed by institutions of elementary education. Their mobility is limited and their dependence on parents or families is considerable. Child population of these ages furnish, to use the Weberian terminology, raw materials of elementary education, which, despite being ubiquities, are pure in nature rather than weight losing type, but quantitative differentials of these material inputs between different locations make them influence locational decisions like the localised materials, the materials that pull the location of production facility towards themselves. In this case, the pull factors will not be confined to the transport cost alone; these factors will rather encompass the entire educational cost, including the costs of boarding and lodging, if the institution is not located at the place of residence. Large sections of population may not be able to afford these costs. Unlike the industries, arousal or dormancy of local demand for elementary education depends crucially upon the location of educational facility. Besides, the physical separation from parents may involve such emotional costs as most of the parents and children may be unwilling to pay. All these elements of monetary and real costs become the decisive determinant and should swamp all other considerations in the location decisions of educational institutions at this level. Therefore, the locational pattern of elementary schools would depend upon the locational patterns of children of the relevant age-groups, while population density in general may be taken as a proxy of both the size and composition of population so as to facilitate overcoming difficulties pertaining to the availability of data about age composition of population at each locality. As the labour market for children, leaving the education stream with this level of qualification, would also be in the immediate neighbourhood, both the raw material and market criterion would incidentally be satisfied.

However, a strict adherence to this criterion would require as widespread a diffusion of the elementary schools as that of the population itself. It appears that, by and large, the actual locations of schools have followed this pattern which has led to the proliferation of sub-optimal sized institutions, preventing the exploitation of the economies of scale, and inflicting certain diseconomies thereof. Scarcity of resources both physical and financial, have led to the inadequacy and poor quality of infrastructure, on the one hand, and the inadequacy and poor quality of teaching inputs, on the other.

Supposing that the optimal size of a school lies in a range given by

$[X^*(1) \pm Z]$

Suppose a habitat, a village or town has a population of size N, and corresponding population of children of the relevant age-group will be determined by C, where C is the child population of relevant age group expressed as the population of total population, satisfying $0 \leq C \leq 1$

On population criterion alone, the school would be viable in a habitat where

$$CN > X^*(1) - Z$$

or, $CN/[X^*(1) - Z] \geq 1$

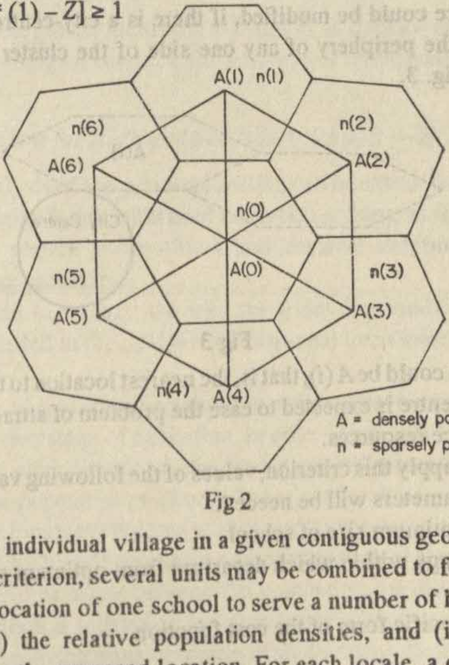

Fig 2

In case no individual village in a given contiguous geographical area satisfies that criterion, several units may be combined to form a cluster.

Now the location of one school to serve a number of habitats should depend on (i) the relative population densities, and (ii) the relative distances from the proposed location. For each locale, a cost-index will have to be prepared which will depend on the number of children in each location and the distances to be covered, given the transporation cost per person/km. For example, for location A (1), the cost index would be

$$0.\, n(1) + Dn(2) + 2\, Dn(3) + 2\, Dn(4) + 2\, Dn(5) + Dn(6)$$

Similarly, the comparable cost indices for other location centres A (0), A (1), A (2), A (3), A (4), A (5), A (6) may be calculated.

The centre having the minimum associated cost-index would be chosen for the location of a school. It is possible that the cost functions are nonlinear in distance, population and their products. But the distances between alternative centres of location need not be uniform, though the previous model has been formulated on this assumption. Criterion can be as follows, where $D(ij)$ is the distance between centres i and j:

$$Z(i) = f\,[D(ij), n(j), n(j)\,D(ij)], \qquad \begin{aligned} i &= j \\ j &= 1, \ldots, k \\ i &= 1, \ldots, k \end{aligned}$$

and the objective will be to choose i such that Z is the minimum.

This choice could be modified, if there is a city-centre in the neighbourhood of the periphery of any one side of the cluster of habitats as indicated in Fig. 3.

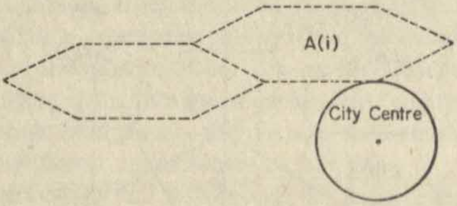

Fig 3

The choice could be $A(i)$, that is, the nearest location to the city centre, if the chosen centre is expected to ease the problem of attracting teaching and other scarce resources.

In order to apply this criterion, values of the following variables and/or associated parameters will be needed:

(i) X^* — optimum size of school,

(ii) Z — range within which departure from optimum size is permissible, and

(iii) f — specific form of the cost function.

Determination of X^* : Factors for Consideration

In deciding the optimum size of schools, we may distinguish between four types of costs:

(i) costs that are independent of the number of students or the size of the school, that is, fixed costs,

(ii) costs that vary step-wise according to the number of teachers,

(iii) costs that vary step-wise according to number of classes, and

(iv) costs that increase continuously according to the number of students enrolled.

It is expected that certain economies of scale operate when a minimum number of teachers and classes are available. For the sake of convenience, suppose that the minimum size of class is *m*, and pupil-teacher ratio is *k*, a multiple of number of students, then

$TC = f(X, k, m)$

where X* would be obtained from

$d(AC)/dx = (1/X) f(X, k, m)$

It is also possible to incorporate *k* and *m* as quality constraints and formulate a Lagrangian function for purposes of optimisation.

Location Decisions for High and Secondary Schools —X(2)

The cluster analysis of the previous section can be extended to locational decisions of higher levels of school education so long as the supply side considerations remain predominant and decisive determinants of the decision making processes.

For high and secondary schools, the following modifications may, however, be needed in the analysis of locational decisions:

(i) It may be assumed that the school locations now become the feeder centres for the next stage of education. In other words, students, completing elementary education from the feeder institutions rather than total age-sex specific population, will constitute the overall cesspool of supply of intermediate inputs of students with elementary education, from where the demand for high and secondary school education will emanate;

(ii) the school passouts become the population for the next tier, and that this population is located at the elementary school centres. This can be obtained by applying transition rates of students enrolled at elementary level to next higher stage of education.

The rest of the analysis would follow through, subject to the following additional considerations. Now it is quite possible that rather than travelling daily, many students may prefer to shift to the school locations for the duration of the study. This would involve a change in the formulation and specification of the cost function as follows:

$f[n(j), D(ij), n(j), D(i, j), r(j)]$

A new element, that is, residential costs, $r(j)$ would be added to the earlier function and the nature of transportation cost may also change due to the change in the mode of transport used for commutation.

Location of Degree Colleges

As far as general education is concerned, the previous analysis will hold. The location patterns of higher secondary schools and the size of their turnover each year will constitute the base of demand for collegiate education, on the one hand, and part absorption of the output of colleges as teachers and non-teachers in schools, on the other. Demand for places will also depend upon the demand for manpower of this level which will be governed mainly by economic development in general and tertiary sectors in particular. Demand side factors will thus play a relatively more dominant role in the location of degree colleges. But the demand for collegiate education will be fed on the supply pool of secondary school graduates flowing from schools at this level, though some demand may be attracted from distant locations also.

Location of Institutions of Higher Learning

There has been a large expansion of universities and institutions of higher learning, including institutions of technical and professional education, in recent years. Many of these new universities are struggling to establish themselves as viable and reputable institutions. To some extent, this is due to inadequate attention paid to their location characteristics. In good many cases, universities were established for political considerations. A location policy for institutions of higher learning has not been formulated. Some of the considerations that may have a bearing on the location of institutions at the apex of the educational pyramid are discussed below.

As we move higher up the educational pyramid, demand side considerations dominate supply side considerations. In fact, since universities and other institutions of higher education can draw or attract students and teachers from a larger area, local demand and supply considerations both become weak. Institutions of higher learning, especially the universities, are conceived to cater to the educational needs of the national and even international communities, and are not confined necessarily to the particular localities for their sustenance. Universities may, therefore, have communities spread across national and international boundaries.

The capacity of a university to draw students from a large catchment area, however, depends on their reputation regarding the quality of education offered and served. However, to provide a basic in-built demand, the size of the local population is important in the ultimate analysis, especially if the proliferation of the number of such institutions becomes so large as will make most of these institutions seek their clientele from the local communities.

Both the location and size of the institutions of higher learning, as well as structure of courses offered, will ordinarily need to have a direct relationship with the levels of income, size and structure of population as well as the structure of local economy, especially its job patterns. Expected manpower requirements, on the one hand, and R&D needs, including social engineering, on the other, will also have a direct bearing upon the number, nature, level and location of universities and other institutions of higher learning in different regions.

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TEN

Technical Education in India: A Study of Education, Employment and Earning Linkages, 1981

Kusum Chopra

The vital role which education has played in the progress of mankind both in the developed as well as in the less developed nations is quite obvious and needs no emphasis. Education in general and technical education in particular has been very important in transforming pre-industrial into industrially developed societies with high rates of economic growth. This, therefore, shifted the emphasis of economic growth from primary sector to developing the secondary sector not because the industrial sector offered more job opportunities, but this sector due to its more impressive growth performance compared to the agriculture sector, was instrumental in helping the gross national product expand at a higher rate. The tertiary sector grew alongwith as a supporting sub-system for this process of growth for which besides some others, organisation and planning were major inputs. With passage of time the tertiary sector grew more and accounted for increasing proportions in terms of the work force. This trend has continued in developed economies where a pivotal role is played by the service sector in generating knowledge through research as well as disseminating it through education and creating sophisticated skills through training. The linkage between education and development acquires great importance in our own times, which is witnessing the unfolding of a scientific-technological revolution at an accelerated rate, unmatched in history. This is particuarly so for developing countries like India where development strategy involves the intertwining of modernisation of agriculture with rapid industrialisation and combining this twin process with the strengthening of facilities with a view to generate more employment and to distribute income more equitably so as to improve the overall quality of life. An education policy must therefore, go hand in hand with the development process particularly in the less developed and labour surplus economies. The OECD conference, as early as 1961, drew attention to this crucial relationship in the following words: "... educational policy can make a major contribution to the general well-being of society.... It may be used as a complement or as an alternative to other instruments of policy, but in both cases its role is a major one.[1] Educated persons are expected to make a positive contribution to productivity and hence an increase in national income/gross domestic product, may partly be due to an improvement in the quality of labour which is generally considered to contribute nearly three quarters to the total national output, and for the betterment of which education becomes a necessary input. On the other hand, if productivity is not on an increase, sufficient funds will not be available to support expansion of education.[2]

In earlier times, the main aim of education was to bring about an expansion of the mind for which a study of philosophy, of literature, of arts, was considered to be important as it made the recipients of education better human beings. Most of the early literature in any of the social sciences, therefore, has philosophy as its base to which solid contributions by the Greeks, the Germans, the English, the French and that of others cannot be denied. But since the times of the industrial revolution in mid-eighteenth century, scientific and technical education has been assuming an important role because the welfare of a large mass of humanity is seen in not only increasing the size of the cake but also in its better distribution. Therefore, promoting growth through a better fit of the round pegs in round holes, which for industrial development would require increased numbers of scientific/technical manpower suited for specialised interests; and a better distribution of the domestic product by disseminating this education widely, thereby allowing more persons to share the cake, would be pointers towards the right direction in industrially growing economies.

The countries of the West, while in the process of developing industrially, took up the cause seriously. "A new system of learning process was born by marrying academic education with skill training specially tailor-made for industrial development."[3] This had happened in Scotland, France and other places during the second half of the eighteenth century but India's experience in this direction was very limited. In the ancient times, India had a flourishing scientific/technical tradition with some well known names in mathematics, medicine and technical trades. But over time these traditions were lost. It was more so during the colonial times when putting India on the industrial map of the world, was never the aim or the intention of the foreign government and if higher scientific/technical education had to be imparted to Indians, it would also have meant creating more jobs for them for which the British government did not find much merit because the Englishmen did not want to create their own competitors. It was for this reason that the Indian industrial plants in the mid-nineteenth century, though few in number, financed by Indian capital and directed by Indian entrepreneurs, always needed imported technical skills of engineers and others from USA, UK, Germany and other European countries. "... the foundation of technical education in India was laid almost at the same time as in Europe, but its growth had been very restrictive and slow in the past till India became independent."[4] Whatever efforts were made by the colonial government were mainly for training craftsmen for local industry or for imparting instructions to create foremen, draftsmen and overseers to assist the "bara Sahibs" in their civil ventures. The opportunity for higher technical education, on the whole, was very limited and only a couple of institutions were established in the country in the first two decades of the twentieth century. Regarding the degree colleges and other technical and industrial arts institutes in the various provinces of India, a larger concentration was seen in Bombay, Bengal and Madras followed by Punjab and Uttar Pradesh. Most of the other areas lagged behind. In 1884-85, only 13.89 percent of the total pupils were receiving advance education in which the technical education component was only 0.2 percent. Taking total population of the country into view, this figure would be next to negligible. In terms of employment, while the top ranking jobs all over were held by the Britishers, only the subordinate and junior jobs were doled out to Indians. This sort of discrimination in jobs in a poor country, where employment was rising very slowly in the absence of large-scale industrialisation, acted as one of the major irritants against the colonial rule, which was under attack on various fronts by the educated and sensitive Indians.

The discrimination in acquiring knowledge by a mass of humanity living in the third-world, and getting employment is not a matter of 'past' but exists even in the present times taking a different form. The developed countries of the western hemisphere where the annual per capita income in 1980 ranged between $9000 to 16,000 were spending between 5 to 9 percent of their GNP on education, whereas this share was as low as between 1 to 4. 5 percent for most of the developing countries whose per capita income in the same year was below $1000. However, though some of them spent a fairly high share in the third level education[5] the per capita expenditure was as low as between $ 3 to $ 30 per annum in these countries compared to between $ 500 to $ 1200 in 1980 in the developed countries of the West. India, while spending 3 percent of its GNP on Education in 1980, spent 13.5 percent of this expenditure on third-level education which means a per capita expenditure of only $ 7.27 as against $ 1163.24 spent in Sweden and $ 877.70 spent in USA. Similarly while the number of scientists per million population largely ranged between 120 to 750 (with the exception of Philippines) in these developing countries, this number was between 1400 to 3500 for the developed West. However, the number of scientists per million population was 415 for India as against much lower figures of 121, 106, 100, 271, 235 in countries like Pakistan, Iran, Congo, Peru and Algeria respectively while the same was as high as 2908 for Canada and 3403 for USA. Much larger expenditures are being incurred by the developed countries on Research and Development too.

This is done with a view to capture international markets for which these nations safeguard their monopoly and leadership of technological advances through controlling counselling, research and collaborations, with a view to advance towards self-reliance in technical matters, and to "...promote economic progress by providing everyone with the skills necessary to master the best technology..."[6] This technical supremacy helps them not only in expansion of employment at home but also in retaining a large share of the profits which helps in improving the quality of life. For future expansions both in employment and in the share of profits, not only cut-throat competition is resorted to by their multinationals in the international market, but attempts are also made to continue to broaden their own national markets with the help of high pressure campaigns for high mass consumption as long as it lasts. Fear of a crash looms large if there is any slackness in the system and it is to avoid such a catastrophe, greater investments are made in Research and Development to keep the markets flooded with newer goods each time through which the developed countries maintain their technical supremacy. In fact, they have to walk on a very tight rope. It is difficult for the developing countries either to break this spiral or to be a part of it because they suffer on three counts — from critical shortages in the stock of scientific/technical manpower, from low capital base and from various kinds of counter pressures from the developed countries which are social, economic and political in nature and act as barriers to engines of growth in technical matters. The recent act of the government of the United States in contemplating to use Super 301 clause against India is a case in point and while 'processes' of production have been patented by the developed world so far, the attempt is now to patent the 'product' itself so that markets are ensured to the rich nations and are not competed away with.

All these precautions are taken in a situation where the developing countries already have a weak position. In all, the third-world has nearly 30 percent of the world's total scientific and technical manpower, but owns as low as only 1 percent of the total patents of the commodities sold in the world market.[7] As a result, these economies cannot hope to capture much of the international market to reap the resultant benefits. Therefore, the time is ripe and it is necessary for the developing regions to train up their own personnel over time and move in a direction so that regional imbalance in educational attainment in the world, especially in the technical fields is reduced. Not only this, even within a country sometimes, large disparities exist between various regions in terms of supply and demand for scientific/technical manpower resulting in disparities in employment situations and in earning levels. Such disparities may be more visible when comparisons are made between the developed and the relatively less devloped pockets/regions.

It is with this background that this paper is written taking data for S-T manpower for the various states of India for 1981 both from the population census volumes of the Registrar General of India and from the Degree Holders and Technical Personnel (DHTP) data of the Council of Scientific and Industrial Research (CSIR) for which nearly 8 lakh persons were surveyed.

As per the Census data in 1961, there were 3.32 lakh (urban and rural) S-T persons with formal education of certificate/diploma, graduate and post-graduate qualifications forming only 0.08 percent of the total population of the country. This share rose somewhat to 0.16 percent in 1971 and then to 0.36 percent in 1981. The absolute number increased to 8.57 lakhs in 1971 and then to 24.04 lakhs in 1981. The rural reported component of this was nil in 1961, 14.29 percent in 1971 and 24.84 percent in 1981 and these persons are listed only as certificate and diploma holders. By virtue of an increase in the share of the rural counterpart, the share of urban S-T declined from 100 percent in 1961 to 85.71 and 75.16 percents in 1971 and 1981 respectively. This study, therefore, concentrates on urban areas only which currently have three-quarters of this manpower of the country and where this manpower with formal degrees and diplomas was 18.07 lakhs in 1981 forming 1.15 percent of the total urban population. This compound annual growth rate in this manpower was 8.29 percent during 1961-71 which increased to 9.45 percent between 1971-81. It is apparent therefore, that the supply of S-T personnel in terms of absolute numbers is increasing quite substantially in the country. When we compare the share of this personnel among those who receive education beyond the school level, the percentage is quite high at 25.37 for urban residents in 1971 and at 20.41 in 1981. This is in sharp contrast to a mere 0.2 percent about a century ago mentioned here earlier.

Table 1 gives details of the characteristics of technical population in India and in its major states,[8] of those who have obtained certificates, diplomas in their subjects or have gone in for a graduate or a postgraduate course in various technical or science subjects largely including engineering and technology, medicine, agriculture, veterinary sciences, nursing, general science and some vocational streams. Those obtaining technical knowledge without any formal training are therefore, not included in this study. It is apparent from the table that the share of technical population in total population does vary between states but only within small margins because of the very low base. Somewhat larger sized states like Madhya Pradesh, Rajasthan, Uttar Pradesh, have much lower share of the technically trained personnel in total population. So is the case for some less developed states like Bihar, Jammu & Kashmir and others. But a large sized state like Maharashtra has more of this share because of a higher level of industrialisation. However, this is not always true because West Bengal does not have a high share of this component in its population due perhaps to high population density, which may be so for Uttar Pradesh as well. In terms of the share of the states, Maharashtra alone has a little more than one-sixth of the country's total technical population and alongwith West Bengal and Gujarat states, which also are important industrially, the share rises to nearly one-third. Another one-third is concentrated in the four sourthern states of the country. Education level-wise, the largest bulge of this population is seen at the bachelor's level, followed by certificate and diploma-holders. With the given distribution of frequencies in the various education levels, the calculated overall Quality Index for technical personnel turns out be the highest for Tamil Nadu followed by Uttar Pradesh, which speaks for the educated only.

Given the state-level information, it was decided to club states on the basis of the levels of development using some real indicators[9] to test the hypothesis that education, employment and earning linkages of technical manpower are stronger among the developed states compared to the less developed ones. It indeed is noticed from Table 2 that the technical population component in total population is higher in the more developed regions and this happens mainly because of the pattern of the female population, who otherwise have a share of only between 3 to 15 percent

Table 1 Characteristics of urban technical population in the states and development regions of India, 1981

States	Share of technical population to total population			Statewise distribution of technical population			Distribution of technical population education level-wise				Quality index of technical population
	Male	Female	Total	Male	Female	Total	Ph.D.	Masters	Bachelors	C/D	
India	1.62	0.61	1.15	100.00	100.00	100.00	1.39	15.65	57.54	25.42	282.91
Andhra Pradesh	1.90	0.40	1.16	8.73	5.71	8.04	1.39	16.97	67.65	14.27	290.85
Bihar	1.30	0.30	0.86	4.68	2.88	4.17	0.92	12.43	73.00	13.25	276.76
Gujarat	1.70	0.50	1.10	6.73	5.32	6.44	1.52	6.44	1.52	13.28	286.54
Haryana	1.80	1.60	1.71	1.93	4.78	2.68	2.84	16.89	54.46	25.81	245.68
Himachal Pradesh	3.30	2.10	2.77	0.46	0.63	0.50	2.63	15.04	50.31	32.29	239.15
Jammu & Kashmir	1.50	0.60	1.09	0.78	0.71	0.75	1.46	17.06	69.28	12.20	277.42
Karnataka	2.30	0.70	1.54	9.61	7.60	9.18	2.95	20.85	51.99	25.01	287.62
Kerala	1.90	1.30	1.61	3.31	7.03	4.24	0.74	12.38	72.41	14.17	263.01
Madhya Pradesh	1.50	0.40	0.63	3.16	4.12	3.69	1.13	27.45	52.99	18.13	293.43
Maharashtra	2.10	0.80	1.53	18.91	17.93	18.69	1.54	16.71	61.93	19.82	274.86
Orissa	1.80	0.50	1.35	2.26	1.71	2.21	1.62	17.76	61.89	19.02	274.06
Punjab	1.40	1.50	1.42	2.54	7.13	3.67	1.68	17.67	71.94	18.71	267.77
Rajasthan	0.90	0.30	0.64	2.62	2.01	2.54	1.90	23.48	58.44	16.18	298.45
Tamil Nadu	1.70	0.50	0.80	8.92	7.91	8.04	1.36	11.83	71.91	14.90	385.48
Uttar Pradesh	0.90	0.40	0.67	7.11	8.32	7.45	2.13	32.31	52.19	13.37	301.44
West Bengal	1.30	0.40	0.71	7.53	6.56	7.18	1.33	10.33	72.61	15.73	277.77
Others	—	—	—	10.72	9.65	10.65	—	—	—	—	—

* This is calculated on the basis of the following weights assigned to each level of education.
Certificate = 1, Diploma = 2, B.Sc. + Equivalent = 3, M.Sc. + Equivalent = 4, M. Phil = 5 and Ph.D. = 6.

of the total technical population in the various states.

Table 2 Share of technical population in total population of the states clubbed according to levels of development, 1981

States	Males	Females	Total
High Developed	1.52	1.55	1.53
Medium - High	1.76	0.63	1.26
Medium - Low	1.40	0.50	0.98
Less Developed	1.50	0.40	0.99

Among those employed, the share of technical workers in total workers of each of the states is higher on the whole in the more developed regions also compared to the less developed ones as is noticed from Table 3.

Table 3 Share of technical workers in total workers in the States allocated to the various development regions, 1981

States	Males	Females	Total
High Developed	2.58	22.95	3.01
Medium-High	2.97	5.00	3.05
Medium-Low	2.34	4.36	2.53
Less Developed	2.65	3.29	2.95
India	2.78	5.06	3.04

This positive relationship between development levels and share of technical workers again is indicative of the hypothesised behaviour and is happening because of the female workers, who, if excluded from the total, will point towards insignificant difference among regions.

On the whole technical education is seen to be relatively more employment oriented when compared to non-technical education with similar

Table 4 Share of unemployeds in technical and non-technical fields of study, 1981

States	Technical			Non-Technical		
	Male	Female	Total	Male	Female	Total
High Developed	13.79	32.38	15.68	25.94	56.90	33.49
Medium-High	18.42	35.58	21.01	27.18	53.38	33.24
Medium-Low	19.13	38.37	21.07	31.48	55.76	35.53
Less Developed	19.57	37.33	21.02	23.48	48.73	27.23
India	18.16	35.92	20.31	26.12	52.15	31.23

education levels. This is because on the one hand, technical education is instrumental in according more mobility to its recepients and on the other, there is perhaps better dissemination of job information for this group. Table 4 compares the share of unemployeds[10] in the two different streams of education and as is apparent, while around one-third of the educateds are unemployed in non-technical stream, one-fifth are unemployed in the various technical fields put together. Unemployment share is the lowest in the high developed states in the technical field despite the high share of in-migrants among technical workers in these areas (Table 5).

Table 5 Share of in-migrants in total technical workers of each region, 1981

States	Male	Female	Total
High Developed	22.55	20.55	22.29
Medium-High	16.96	17.21	17.01
Medium-Low	15.73	20.39	16.35
Less Developed	18.37	24.19	18.96

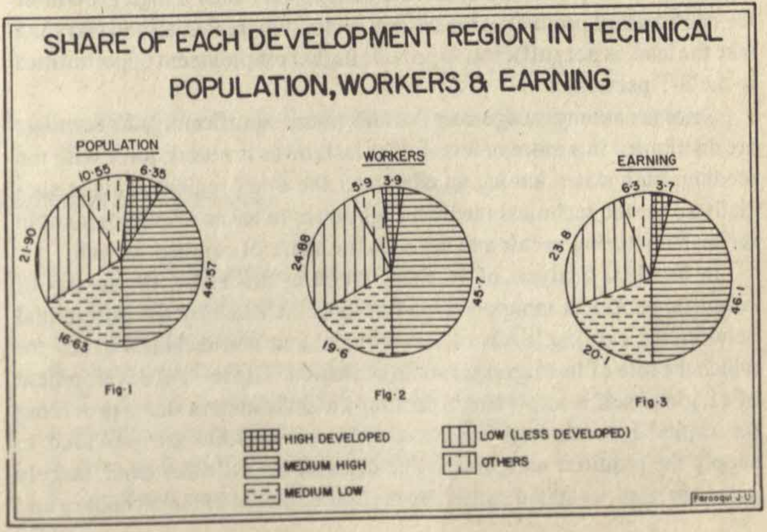
Unemployment's share is the largest in the country at 22 percent among the Certificate and Diploma (C&D) holders. It varies inversely as the level of education for technical hands increases and is minimal at 5 percent level for the doctorates. This is because the supply of C&D and those with Bachelor's degree is also among the largest. Punjab and Haryana are the only states where only 7.5 percent unemployment exists among the Bachelor degree holders. In the rest of the regions, it varies between 12 to 22 percent. Unemployment pattern, therefore, does show strong negative linkage with technical education in the relatively more developed states. Among the non-technical the overall share of unemployment is relatively lower in the less developed states when compared to the others. But what is interesting is the pattern among the educated females. Unemployment, which is less than one-third among those having technical education is more than 50 percent in the arts and in other non-technical subjects. Not only this, while a larger share of technically trained females participate in economic activity in the more developed regions compared to the relatively less developed states, where fewer jobs are available, it is the other way round for the non-technical females who are found to be more unemployed in the relatively affluent areas and are pushed to undertake work in the less developed regions resulting in lower unemployment.

The average earnings of females in the various states clubbed according to levels of development, are not very different in the technical or in the non-technical fields (Table 6), though on the whole the average wage for female is approximately Rs. 100 more in the technical field compared to its counterparts among the non-technicals.

Table 6 Monthly average emoluments (rupees) for technical and non-technical personnel in India, 1981

States	Technical			Non-Technical		
	Male	Female	Total	Male	Female	Total
High Developed	1246.32	1072.36	1233.24	1068.34	934.26	1047.01
Medium-High	1309.29	1026.86	1275.19	1118.10	957.82	1091.94
Medium-Low	1303.58	1071.45	1285.33	1035.39	897.69	1019.65
Less-Developed	1218.69	1050.30	1209.62	1004.38	899.30	994.67
India	1287.02	1048.66	1264.38	1080.60	946.08	1061.86

In total earnings of the technical personnel, females occupy a meagre share of only 8.5 percent (Fig. 1). For males, however, the wage level is the highest in the industrially advanced states for the medium-high category and this wage declines with a movement towards the less developed areas. For the technical manpower on the whole the average wage is approximately Rs. 200 higher per month than the non-technical workers.



The linkage between education-employment and earnings of the technically educated can be seen from the three pi diagrams from where it is clear that the high developed states have a lower share of workers (Fig. 1) vis-a-vis their share of technical population (Fig. 1). This is because although the unemployment rate is also lower there as mentioned earlier in the text, a fewer workers exist in these states because both these states have a 'developed' status due to a growth in their agriculture which absorbs less of technical hands compared to states where industries have a larger base.

On the other hand, the slice of workers is only somewhat higher for the medium-high states but is 3 percentage points higher for the medium-low and the less developed states. It will be very much worthwhile to explore if more development projects are located in these states which create a higher demand for the technical hands. But these states are attempting to grow at high rates industrially and hence are absorbing more hands in the bargain. The two medium-low states of Karnataka and Uttar Pradesh, for example, had a growth rate of 3.56 and 2.09 between 1971 and 1981 of the State Domestic Product contributed by the manufacturing sector. Some of the low ranking states like Andhra Pradesh, Orissa, also had growth rates of 2.51 and 2.86 of this product contributed by this sector. Among the medium-high states, though Maharashtra's, Kerala's and Tamil Nadu's product of this sector grew at high rates, West Bengal had a negative growth and Gujarat's growth rate was very low. This, therefore, affects the absorption rate of the S-T manpower. Only a high growth of the contributory product of the tertiary sector, where Punjab and Haryana take the lead, is not sufficient to provide higher employment opportunities to the S-T personnel.

Since the average wage does not differ very significantly, the earnings are distributed in a more or less similar fashion as the work-force with the medium-high states having an edge over the other regions. This is specially so for the technical medium-high states in terms of employment in the manufacturing sector and hence in the share of earnings as well.

In the final analysis of 16 states taken in this study, the supply of scientific technical manpower is seen to be affected by the differential between the earning levels of the technical and non-technical hands for which the role of in-migrants cannot be denied. The level of development of a region itself is important in creating an environment and in providing the capital base through which educational facilities are provided to supply the required manpower. The demand on the other hand, largely gets generated, as stated earlier, by the devleopment of the secondary and tertiary sectors and through the development of industries in particular. Educational level of the scientific-technical hands itself makes them more marketable. It has already been seen that unemployment rate has an inverse relationship with education levels, hence creating facilities for higher S-T education would mean better linkage with the employment market. The high productivity of invested capital in industries is also instrumental in generating demand for the said manpower. Hence, not only productivity levels, but also an expansion of the secondary sector would lead to a higher absorption of S-T personnel. In terms of the high employment avenues for this group (nearly 75 percent) in the public sector activities, development plans for states or for expansion of public sector enterprises in future would mean planning for the education of S-T manpower today. But it is clear that to bring down the unemployment among graduates and the certificate diploma holders, large incentives have to be given for self-employment schemes too in urban areas. All this has to be done keeping in view an expansion of the secondary sector where productive employment can be provided to the S-T personnel so that their contributions help in enlarging the cake-size. A mere shift from primary sector to the tertiary sector of the work-force cannot be sustained.

APPENDIX 1

Ranking of States by Factor Scores of the Various Development Indicators

Indicators of Development

1. GDP agriculture/agri male workers
2. Gross irrigated area/gross cropped area
3. Cropping intensity
4. Share of net sown area in cultivable area
5. Tractor per hectare gross cropped area
6. Fertiliser consumption per hectare of GCA
7. Area under HYV/gross cropped area
8. Small and medium holdings/total holdings

9. GDP manufacture/workers in manufacturing sector
10. Net value added/invested capital
11. Industrial credits/total credits
12. Road length/100 sq km area
13. Per capita consumption of electricity
14. Credits /deposits in scheduled commercial banks
15. Urban population/total population
16. Workers/total population
17. Literacy rate
18. Worker in secondary and tertiary sector/total workers

State/Region	Factor score	State/Region	Factor score
High		*Low*	
1. Punjab	15.92	10. Andhra Pradesh	– 3.61
2. Haryana	9.46	11. Jammu & Kashmir	– 4.02
Medium High		12. Himachal Pradesh	– 5.12
3. Maharashtra	4.30	13. Orissa	– 5.21
4. Tamil Nadu	3.96	14. Rajasthan	– 6.18
5. Kerala	2.91	15. Bihar	– 6.53
6. Gujarat	2.23	16. Madhya Pradesh	– 6.64
7. West Bengal	1.70		
Medium Low			
8. Karnataka	– 1.47		
9. Uttar Pradesh	–1.71		

APPENDIX 2

Share of Each Development Region in Technical Population, Workers and Earnings

	Male	Female	Total
Population			
High Developed	4.47	11.91	6.35
Medium-High	45.40	44.75	44.57
Medium-Low	16.72	15.92	16.63
Less Developed	22.69	17.77	21.90
Others	10.72	9.65	10.55
All India	100.00	100.00	100.00
Workers			
High Developed	3.95	3.10	3.86
Medium-High	44.16	59.45	45.73
Medium-Low	20.09	15.74	19.64
Less Developed	26.00	15.12	24.88
Others	35.80	6.59	5.89
All India	100.00	100.00	100.00
Earnings			
High Developed	3.83	3.17	3.71
Medium-High	46.01	58.22	46.12
Medium-Low	20.44	16.09	20.12
Less Developed	24.62	15.13	23.80
Others	5.10	7.39	6.25
All India	100.00	100.00	100.00

NOTES AND REFERENCES

1. OECD - Policy Conference on Economic Growth and Investment in Education held between 16 to 20 October 1961, Washington, DC.
2. Seth Spaulding, "Prescriptions for educational reform: dilemmas of the real world", *Comparative Education,* Vol. 24, No. 1, 1988. Also see i) Frederick Harbison and Charles Myers, *Education, Manpower and Economic Growth —strategies of human resource development,* Oxford and IBH Publishing Co., Calcutta, 1970, p. 40. ii) J.R. Ramos, *Labour and Development in Latin America,* Columbia University Press, New York, 1970.
3. Biman Sen, "Development of Technical Education in India: (1921-1980)" in Studies in Educational Reforms in India, Vol. III, Ed., P.R. Panchmukhi, Himalaya Publishing House, Bombay, 1989.
4. Ibid.
5. With Nepal spending as high as 35 percent of the total public expenditure allocated for education on Third-level education, while many other countries were in a range of 13 to 20 percent.
6. Ranson, Baldwin, "Planning Education for Economic Progress: Distinguishing Occupational Demands from Technological Possibilities", *Journal of Economic Issues,* Vol. XX No. 4, December 1986, p. 1063.
7. Surendra Patel, "Intellectual Property Rights", *The Economic and Political Weekly,* February, 1989 (No.8)
8. Assam was not incident among the major states for analysis here because the census was not conducted in this State in 1981.
9. See Appendix I for the selected indicated and for the formation of Development Regions based on factor scores.
10. Defined as only those technically educated persons who are "seeking work.

ELEVEN

Education-Employment Linkages: An Inter-District Comparison

N.V. Varghese

1. Introduction

The relationship between education and employment became an important field of enquiry ever since the figures on unemployment of the educated showed a sharp increase. However, most of the studies in this area focus on the unemployment of the educated. Interestingly, often the studies which were initiated to analyse the employment pattern ended up in discussing unemployment of the educated.

The available studies in the area of education and employment can be categorised into: (i) those based on macro-level empirical evidence; and (ii) those based on micro-level surveys carried out for spcific purpose. The former type of studies mostly analysed the situation at the national level or at most at the state levels. The latter category of studies, while subjected to relatively more sophisticated statistical analysis, could not bring about a comparative perspective.[1] In other words, analysis of regional disparities in terms of the relationship between education and employment is almost a neglected area. The purpose of this paper is to highlight some aspects of educated and employment linkages between different regions which vary in terms of educational attainment of the population.

Does the educational profile of the workers in regions which vary in terms of educational levels differ? This is the central question this paper attempts to answer based on the empirical evidence at the district level. The regions chosen for analysis are Kottayam and Palghat districts of Kerala state. Kottayam has the highest literacy rate in Kerala (in India too) and Palghat is one of the educationally backward districts of Kerala. The empirical evidence is based on 1981 census figures.

The analysis in this paper focuses on two aspects of the education and employment relations: (i) the work participation rates by levels of education; and (ii) the educational levels of the workers by economic sectors. In both the cases a comparison between the districts with respect to rural-urban differences and male-female differences are highlighted.

2. The Work Participation Rates (WPR)

As per 1981 census Kerala has a population of 25.45m. The main workers constitute 6.75m. The work participation rate (26.5%) is considerably lower than the all India average of 33.3%.[2] This lower WPR is primarily due to the lower participation rate among the younger age group mainly due to the spread of education and also due to the lower participation rates among women. One important feature of work force deployment in Kerala is its relatively low share in the primary sector. At the all India level nearly 66% of the work force is engaged in primary sector activities whereas in Kerala proportion of labour force engaged in service sector activities is 29%. This is primarily due to the relative faster growth of the social service sectors in Kerala.[3]

The differences in work participation rates between the selected districts in Kerala are given in Table 1.

Table 1 Work participation rates (main workers) 1981

	Kerala			Kottayam			Palghat		
	M	F	T	M	F	T	M	F	T
All Workers	41.0	12.4	26.5	42.2	10.1	26.2	44.5	22.4	33.4
Rural	41.2	13.0	26.9	42.3	10.0	26.2	44.5	23.4	33.9
Urban	40.0	9.7	24.9	40.6	11.3	25.8	44.2	13.4	28.6

Source: Census of India (1981) (Kerala State)

The WPR, in general, is higher in the rural areas than in the urban areas. This is true for males as well as females. If we compare the two districts we can find some interesting features:

i) WPR among males is more consistent and higher than among females;

ii) Educationally backward region (Palghat) shows a higher participation rate than educationally advanced region.

iii) Female WPR especially in rural areas vary widely between educationally advanced and educationally backward regions. However, such differences narrow down in the urban areas of the same districts.

Why do educationally advanced regions show a lower participation rate? In general, one can say that the differences in participation rates between these regions are mainly due to the differences in the WPR of females. The trend shows that education has a negative influence on the work participation of the females. Can we generalise this trend? Or is it confined to certain levels of education? A glance at WPR by levels of education between these regions will help us in understanding this phenomenon.

Tables 2a and 2b show work participation rates by levels of education in the two selected districts. These tables show that

i) The higher the literacy level of a region the lower is the WPR in the illiterate category. This shows that a general increase in the educational level of population bumps the illiterates out of the employment market.

ii) Participation rates of both males and females decline at the terminal levels of education. For example, WPRs are declining at the middle and higher secondary levels of education.

iii) Apart from the above digression, male participation rates are not only high but also increase with every increase in the level of education.

iv) Female WPRs show an altogether different pattern: (a) in educationally advanced region female WPR increases at lower levels of education (till primary), then it declines and it increases again at post-secondary level of education (Table 2a); (b) in educationally backward region the female WPR is high at 'no level' and high level of education. That is why in Palghat female WPR is high among illiterates and post-secondary graduates.

The pattern of participation rate among females shows that school level education does not have any significant influence on female work participation whereas the same level of education has a significant influence on the male WPR. On the other hand WPRs between males and females are more comparable among the university graduates. Whereas in case of females it has a definite advantage and their participation rates increase substantially. It also needs to be added that WPR among university graduates is higher in areas where general educational level is lower.

The sharp increase in the female WPR among the university graduates is primarily due to their over-concentration in the other services sectors. Nearly 80% of the educated women work in the tertiary sector. In Kottayam other service sector alone accounts for nearly 72% of the women employment in the urban areas. The same in Palghat is around 40%. No such clear cut concentration is discernible in the case of males, although service sector and non-household manufacturing sector account for a good share of educated men.

Table 2(a) Work participation rates by educational level (Kottayam)

Educational level	Work participation rates								
	Rural			Urban			Rural and Urban		
	Male	Female	Total	Male	Female	Total	Male	Femal	Total
Illiterate	14.7	9.0	11.5	12.0	9.3	10.5	14.4	9.0	11.4
Literate	28.5	10.4	19.6	32.2	9.8	20.9	28.8	10.4	19.7
Primary	57.2	11.0	35.0	48.4	10.3	30.0	56.5	10.9	34.6
Middle	49.5	5.9	28.3	46.8	5.3	26.7	49.2	5.8	28.1
Secondary	50.0	8.1	29.5	52.7	12.4	32.5	50.3	8.6	29.9
Hr. Secondary	34.0	4.3	19.5	39.4	4.9	21.6	34.8	4.4	19.8
Diploma	79.5	74.3	76.9	68.8	74.5	72.1	78.5	74.3	76.4
Graduate & above	66.2	38.3	55.1	54.8	46.5	51.2	64.0	40.1	54.3
Total	42.3	10.0	26.2	40.6	11.3	25.8	42.2	10.1	26.2

3. Educational Profile of the Workers

The educational profile of the population and main workers is given in Tables 3a and 3b. Illiterates constitute a substantial proportion of the workers in Palghat whereas the primary level educated constitute the single largest category in Kottayam. The share of illiterates does not vary substantially between urban and rural areas in Kottayam whereas in Palghat the share of illiterate workers is almost double than that of the urban areas. In both the districts the share of illiterates in the female work force is higher than that of the males. In Palghat more than two-thirds of the female workers are illiterate.

Table 2(b) Work participation rates by educational level (Palghat)

Educational level	Work participation rates								
	Rural			Urban			Rural and Urban		
	Male	Female	Total	Male	Female	Total	Male	Femal	Total
Illiterate	39.3	30.7	34.2	28.2	19.8	23.2	38.5	30.0	33.5
Literate	43.1	18.9	34.2	36.6	8.1	22.8	42.5	17.4	33.0
Primary	51.8	15.8	34.6	50.9	8.5	30.0	51.7	15.0	34.1
Middle	44.7	8.6	28.5	47.2	4.9	27.5	45.1	8.1	28.4
Secondary	50.9	13.3	35.5	– 58.1	2.8	37.9	52.3	13.2	36.0
Hr. Secondary	34.7	8.8	25.5	39.9	8.4	24.2	35.9	8.6	25.1
Diploma	78.1	86.4	81.3	79.9	76.0	78.2	78.4	84.3	80.7
Graduate & above	69.2	47.4	62.3	80.6	50.8	69.5	73.1	48.8	64.9
Total	44.5	23.4	33.9	44.2	13.4	28.6	44.5	22.4	33.4

One of the important patterns that emerges from the distribution (Table 3b) is that the educational levels of the female main workers in Palghat district is consistently lower than their share in the population. This is not true for males in Palghat and for both sexes in Kottayam. Within economic sectors 77% of the female workers in agricultural labourers category are illiterate in the Palghat rural area whereas the same in Kottayam is only 58%. However in both cases this sector represents the highest illiterate females. Though the share is low the trend is similar for males also.

As a next step in the analysis we estimated the mean years of education of workers in all economic sectors for these two districts.[4] The method used to estimate this is given as follows:

Means years of education = $\sum a_i w_j/100$

w_j = the percentage of workers with ith level of education within a given sector of activity

a_i = the total member of years required to complete a given level of education

$j = 0, 1, 2, ..., k$

$i = 0, 1, 2, ..., n$

Tables 4a and 4b show the mean years of education of the workers in two districts. The tables show that educational levels of the workers vary between the two districts. As can be expected educational levels of the workers in the educationally advanced region is higher than that in the educationally backward region. More specifically, the average educational level of the workers (measured in terms of mean years of education) in Kottayam is nearly double than that of Palghat. The variations are sharper

Table 3(a) Main workers by educational level (Kottayam)

Educational level	Total population			Main workers		
	Male	Female	Total	Male	Female	Total
Rural						
Illiterate	16.1	20.8	18.5	5.6	18.7	8.1
Literate	18.9	18.6	18.8	12.7	19.5	14.0
Primary	26.9	24.9	25.9	36.3	27.4	34.6
Middle	22.3	21.2	21.7	26.1	12.4	23.5
Secondary	9.9	9.5	9.7	11.7	7.7	10.9
Hr. Secondary	2.6	2.5	2.5	2.1	1.1	1.9
Diploma	1.0	1.0	1.0	1.9	7.5	3.0
Graduate & above	2.3	1.5	1.9	3.6	5.8	4.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Urban						
Illiterate	14.9	19.0	17.0	4.4	15.6	6.9
Literate	16.8	17.0	16.9	13.4	14.7	13.7
Primary	23.2	21.4	22.3	27.7	19.3	25.8
Middle	23.1	21.4	22.3	26.7	10.1	23.0
Secondary	11.4	11.3	11.3	14.8	12.3	14.2
Hr. Secondary	4.1	4.3	4.2	4.0	1.8	3.5
Diploma	1.0	1.4	1.2	1.7	8.9	3.3
Graduate & above	5.5	4.2	4.8	7.4	17.3	9.6
Total	100.0	100.0	100.0	100.0	100.0	100.0
Rural & Urban						
Illiterate	16.0	20.6	18.3	5.5	18.3	8.0
Literate	18.7	18.5	18.6	12.8	19.0	14.0
Primary	26.5	24.6	25.6	35.5	26.5	33.8
Middle	22.4	21.2	21.8	26.1	12.2	23.4
Secondary	10.0	9.6	9.8	12.0	8.2	11.2
Hr. Secondary	2.7	2.6	2.7	2.2	1.1	2.0
Diploma	1.0	1.0	1.0	1.9	7.7	3.0
Graduate & above	2.6	1.8	2.2	4.0	7.0	4.6
Total	100.0	100.0	100.0	100.0	100.0	100.0

in rural areas and are relatively lower in the urban areas. Within the district, rural-urban and male-female differences in educational levels are more pronounced in Palghat district.

Table 3(b) Main workers by educational level (Palghat)

Educational level	Total population			Main workers		
	Male	Female	Total	Male	Female	Total
Rural						
Illiterate	36.5	52.5	44.6	32.2	69.0	44.9
Literate	20.3	11.7	16.0	19.7	9.5	16.2
Primary	21.5	19.4	20.5	25.0	13.1	20.9
Middle	14.5	11.7	13.1	14.5	4.3	11.0
Secondary	4.9	3.4	4.1	5.6	1.9	4.3
Hr. Secondary	0.9	0.5	0.7	0.7	0.2	0.5
Diploma	0.6	0.4	0.5	1.1	1.4	1.2
Graduate & above	0.8	0.4	0.6	1.2	0.7	1.1
Total	100.0	100.0	100.0	100.0	100.0	100.0
Urban						
Illiterate	23.6	34.2	29.0	15.0	50.5	23.5
Literate	17.8	15.6	16.5	14.3	9.4	13.2
Primary	20.8	19.5	20.1	24.0	12.2	21.2
Middle	20.3	17.1	18.6	21.6	6.2	17.9
Secondary	11.0	8.5	9.8	14.4	8.1	12.9
Hr. Secondary	2.4	2.3	2.3	2.1	1.4	2.0
Diploma	1.1	0.8	0.9	2.0	4.3	2.5
Graduate & above	3.6	2.0	2.8	6.5	7.7	6.8
Total	100.0	100.0	100.0	100.0	100.0	100.0
Rural and Urban						
Illiterate	35.2	50.6	42.9	30.5	67.8	43.0
Literate	20.0	12.1	16.1	19.2	9.5	15.9
Primary	21.4	19.4	20.4	24.9	13.0	20.9
Middle	15.1	12.3	13.7	15.3	4.4	11.6
Secondary	5.5	3.9	4.7	6.5	2.3	5.1
Hr. Secondary	1.0	0.7	0.8	0.8	0.3	0.6
Diploma	0.7	0.4	0.5	1.1	1.5	1.3
Graduate & above	1.1	0.5	0.8	1.8	1.2	1.6
Total	100.0	100.0	100.0	100.0	100.0	100.0

Table 4(a) Main workers by mean years of education: Kottayam 1981

	Rural			Urban			Total		
	M	F	T	M	F	T	M	F	T
Total Pop.	5.4	5.0	5.2	6.0	5.7	5.8	5.4	5.1	5.3
Main workers	6.4	5.6	6.3	7.1	7.4	7.2	6.5	5.8	6.4
Cultivators	6.3	4.8	6.3	8.1	7.0	8.1	6.3	4.9	6.3
Agri labourers	5.1	3.4	4.5	4.6	3.4	4.3	5.1	3.4	4.5
Livestock, etc.	5.5	3.6	5.4	5.3	7.2	5.4	5.5	3.6	5.4
Mining	4.5	3.6	4.4	2.8	2.0	2.6	4.3	3.1	4.2
HH industry	5.2	3.9	4.5	6.1	4.3	5.3	5.3	4.0	4.6
Non-HH ind	6.7	6.4	6.7	7.4	7.1	7.4	6.8	6.5	6.8
Construction	5.7	3.9	5.6	6.5	5.7	6.4	5.8	4.2	5.7
Trade & commerce	7.1	6.3	7.0	7.8	6.7	7.7	7.3	6.4	7.2
Transport storage	7.2	9.3	7.3	6.2	10.3	6.4	7.0	9.5	7.1
Other services	9.0	9.3	9.1	8.3	8.6	8.4	8.9	9.1	9.0

Table 4 (b) Main workers by mean years of education: Palghat 1981

	Rural			Urban			Total		
	M	F	T	M	F	T	M	F	T
Total pop.	3.5	2.7	3.1	5.2	4.3	4.7	3.7	2.9	3.3
Main workers	3.9	1.7	3.1	6.2	4.1	5.7	4.1	1.9	3.4
Cultivators	4.6	2.7	4.2	6.0	2.9	5.3	4.6	2.7	4.2
Agri labourers	2.0	1.1	1.5	2.2	1.0	1.5	2.0	1.0	1.5
Livestock, etc	3.0	1.5	2.7	3.7	1.5	3.5	3.0	1.5	2.8
Mining	2.2	0.7	2.1	3.4	5.0	3.5	2.3	0.8	2.1
HH industry	3.1	1.5	2.6	3.7	1.5	3.1	3.2	1.5	2.6
Non-HH ind	5.0	4.6	4.9	6.1	4.8	6.0	5.1	4.7	5.1
Construction	3.9	2.1	3.7	5.0	3.0	4.7	4.0	2.3	3.8
Trade & commerce	5.0	3.0	4.9	6.7	6.6	6.7	5.4	3.6	5.3
Transport, storage	5.5	5.7	5.5	6.7	9.2	6.8	5.9	7.4	5.9
Other services	7.0	6.6	6.8	7.9	6.6	7.4	7.1	6.6	7.7

An interesting finding that emerges from the tables is that though the educational profiles of the female workers is lower than the male workers, the mean years of schooling is highest among the females in the transport, storage and communication sector in the urban areas. This pattern is similar in both the districts.[5] This is because of the low share of the females in this sector accompanied by higher proportion of the university graduates. For example, in Kottayam 40% of the women employed in this sector have qualifications equal to or higher than a university degree and the corresponding figure for Palghat is 20%. But it needs to be added that of the total women workers, the highest concentration of university graduates is found in the other service categories.

4. Some Concluding Observations

This paper was an attempt to highlight some aspects of the education and employment pattern at the district level with special emphasis on the differences in the pattern between districts which vary in terms of levels of education. The empirical evidence brings out many factors which can be of immense help in understanding the dynamics of education and employment relationship.

In general educational level of the workers is closely associated with the over all educational level of the population of the region. It seems, education especially lower level education, has more positive influence on the male work participation rates and almost a negative influence on the female WPRs. On the other hand, university education has strikingly more positive influence on female WPRs. How do we explain this?

Female WPR is very low in India. This is due to the cultural tradition whereby women's place is within the household. Women in India withdraw from labour force immediately after their marriage. With the spread of education WPR among women belonging to lower age-groups also declined. These two factors bring down the WPRs of women. Providing 'little' bit of education may not help the Indian women to liberate themselves from the prevailing cultural taboo. That is why education at lower levels is not showing any positive influence on the WPRs of women.

Another factor which influences women's employment is the pattern of growth of the economic sectors. The faster the growth of the service sectors, the better the chances of educated women to enter the labour market. In other words, growth of urban service centred activities encourage educated women to participate in the work.

Perhaps, more significantly, the employment based projections may not form a reliable proxy to plan women's education in India whereas such speculations are more reliable in case of planning education of the males. Putting it in a more general framework of educational planning, this can imply that traditional manpower planning approach is no more a reliable method to plan women's education in India. It should be based on the context of the socio-cultural factors. In other words, the benefits to women education cannot be assessed on the basis of their employment and the monetary benefits therein. This is an important aspect to be taken into account especially in the wake of decentralised planning that is talked about in the recent days. We may have to resort to different approaches to plan education of the males and that of the females.

Second, the empirical evidence shows that disparities (in terms of male-female, rural-urban, etc.) in educational levels of the workers is more pronounced in the regions with lower levels of educational attainment. WPRs seems to be heavily influenced by sectors of activity. Regions with larger share of service sectors attract more female workers in the urban areas whereas regions with very high share of agriculture attract more women to the rural areas. This is logical, given the fact that women in rural areas are mainly engaged as agricultural labourers or cultivators who are mostly illiterate: Since agriculture absorbs a large share of women workers the WPRs of women are higher in rural areas in an educationally backward region. This pattern points to the necessity of educating these women as a priority task of the government. Therefore, any adult literacy programmes for women should be initiated first among the agricultural labourers. In Kerala agricultural labourers are an organised category. Therefore, it may be easier to bring them under the purview of adult literacy programmes. Given the fact that the literacy rates in Kerala are already high and net enrolment ratios are nearing cent percent the emphasis of educational programmes needs to be oriented towards educating adult women workers in the rural areas. Therefore, rural-women centred adult literacy programmes should form a priority area in Kerala.

NOTES

1. For a review of studies in this area see Varghese (1989).
2. The changing work participation rates as per different estimations are discussed in Krishnamurty (1984).
3. Gopalkrishnan (1986) shows the growth of social consumption in Kerala and its implications for investment and economic development.
4. In some studies authors call it composite index of educational development

(see Aggarwal, 1988). However I prefer to call Mean Years of Education. The methodology for estimation is based on Psacharopoulos (1986).

5. Similar trend is true in case of educated males too. For empirical evidence at all India level, see Varghese (1988).

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TWELVE

Urbanisation and Regional Disparities in Educational Development : Implications for Planning

Indu Patnaik and Rajalakshmi Rama Rao

Education and economic development are closely linked. The relationship between investment in human capital and economic growth was emphasised even by Adam Smith and the early classical economists.[1] In the 1960's Schultz (1961) and Denison (1962) showed that education contributes directly to the growth of national income by improving the skills and productivity of the labour force.

There has been rapid expansion of educational facilities after World War II all over the world, even in the developing countries. Education has been viewed as an investment which could help to alleviate poverty and eliminate regional disparities. In India, too, education services have expanded rapidly after Independence. The goal of free and compulsory education through the age of 14 years is a Directive Principle of the Constitution. The literacy level has increased from a low of 5.3 per cent in 1901 to 36.2 per cent in 1981. However, despite increase in the literacy level the number of illiterates has continued to increase. Thus while in 1901, 222 million people were illiterate, by 1981 as many as 424 million were illiterate.[2]

Compounding the problem of increasing number of illiterates is the existing disparity at various levels between sexes, between regions, between scheduled castes and scheduled tribes and other castes. It is these disparities which need further attention. In this paper we have examined regional disparities in the context of urbanisation in India. The relationship between urbanisation and literacy has been first analysed at the state level. This is followed by a comparison of the situation in two states which have a high level of urbanisation, Maharashtra and Tamil Nadu, with that in two states with a low level of urbanisation, namely, Orissa and Bihar.

The level of urbanisation, that is the proportion of urban population to total population, averaged 23.70 per cent in 1981 for India as a whole but varied from cent per cent in some districts to almost negligible levels in others. Although the level of urbanisation is not very high, India had nearly 160 million people living in urban areas.

Literacy level and urbanisation have a high degree of correlation. Firstly villages often have small populations and may not be able to support school services individually; secondly, education was in the early stages, an urban requirement needed for jobs in urban areas; thirdly, during the colonial period most development was concentrated in a few cities which also cornered the educational facilities; and fourthly it was in villages that the barriers to progress for scheduled castes and tribes were more invincible as a result of which it was more difficult for them to even think of being educated.

During the colonial period the education system was essentially urban based and was geared towards producing 'babus' for the bureaucracy. In 1950-51 the student population was 2.8 crores; however, by 1982-83 it had reached 11.4 crores.[3] In 1987-88 India had 14,765 pre-primary schools and nearly 5.5 lakh primary schools.[4] Thus major emphasis has been laid on the spread of education. However, education services are not evenly distributed and the Fourth All India Educational Survey revealed that 1,90,000 habitations were without schooling facilities.[5] Although many more schools have come into existence since then, the number of habitations has also increased. In addition nearly one-third of the schools in rural areas have only one teacher. The policy so far has stressed the importance of enrolment and approximately 95 per cent of the children in the 6-11 year age group and 50 per cent of the children in the 11-14 age group are enrolled in schools.[6] But the difficult part is that nearly 60 per cent of the children drop out between Classes I-V and 75 per cent between Classes I-VIII. The problem therefore is not only of enrolment but also one of retention. Therefore what is needed is motivation to go to school. The need for children to work, especially for girls from low income families to help in the housework and in the care of siblings, is one of the factors which keeps children out of school. The lack of even basic amenities such as blackboards and corporal punishment are other reasons which make schooling unattractive.

The National Policy on Education, 1986, however marks a change in the right direction. The two areas of emphasis are: (i) universal enrolment and universal retention of children up to 14 year of age; and (ii) improvement in the quality of education. The aim of the policy is to reduce disparities through area-specific and population-specific planning. Nearly three-quarters of the out-of-school children are in nine states: Andhra Pradesh, Assam, Bihar, Jammu and Kashmir, Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh and West Bengal. These states designated as educationally backward, will receive special attention as well as backward pockets in other states.[7]

The other emphasis in the NPE is on adult education in order to reduce economic, social and gender disparities. The aim of the New National Programme of Adult Education (NPAE), is to provide education to the illiterates in the age-group 15-35 year. The eradication of illiteracy is the aim of the Technology Mission of the same name. The aim is to eliminate illiteracy altogether by detailed planning at the district level. This would be the responsibility of the District Boards of Education.

Regional Disparities in Education Services

As has been mentioned earlier, disparities in education are to be found both at the regional level as well as the state level. Disparities are especially pronounced between rural and urban areas. Raza and Aggarwal trace the origin of these disparities to the colonial period:

> The colonial processes of spatial articulation, which were strongly embedded in the space economy, effected both the qualitative and quantitative attributes of urbanisation. In the educational sector their ability to play this dominant role was considerably influenced, firstly, by creating educational opportunities which formed the basis for the adoption of the modern means of production, and secondly by creating a variety of job opportunities in productive sectors of the economy located therein.[8]

Despite concerted attempts by the government to expand the primary school network about 20 per cent of the settlements in India have schools over one kilometre away and only 46.8 per cent have schools within the habitation. The lack of adequate transport, the extreme weather in parts of the country and difficult terrain in others and the general hesitation in sending girls to other settlements for education have pegged literacy at its present low level.

Urbanisation and Literacy

Cities grow by natural increase, net inmigration and reclassification. During the period 1971-81, India's urban population increased by 49.86 million persons — an increase of 20.57 million was due to natural growth, 20.01 million was contributed by net inmigration while the addition of 9.28 million persons was due to reclassification.[9] The concentration of educational facilities in towns and the employment needs of the urban population are factors which are responsible for the higher literacy rates in urban areas. Even migrants into towns tend to have higher literacy rates.

Raza and Aggarwal (1983), using 1981 census data, have calculated that rural-urban disparities in literacy rates explain 45.3 per cent of total variance in their model of regional disparities. The explanatory power of this variable which ranks second on their list is almost the same as that of male-female differentials, which ranks first. Thus, the two main factors which explain regional disparities are urbanisation and the gender bias.

The examination of urbanisation levels and literacy rates (Table 2) shows that amongst the states Maharashtra has the highest level of urbanisation alongwith a high literacy rate. The literacy rate in Maharashtra is surpassed only by that in Kerala. This is because Kerala is a special case of settlement development wherein settlements with some urban characteristics have developed along roads in a ribbon pattern. The lower densities however preclude their classification in the 'Urban'

Table 1 Habitations and population served by primary schools

Distance	Habitation's with primary schools		% Population served by primary schools
	Number	% of all habitants	
Within the habitation	451457	46.80	78.53
0.1-0.5	141519	14.67	6.60
0.6-1.0	181022	18.77	7.69
up to 1.0	773998	80.24	92.82
1.1-1.5	52633	5.46	2.20
1.6-2.0	72046	7.47	2.83
More than 2.0	65987	6.84	2.15
Total	964664	100.00	100.00

Source: Moonis Raza, A. Ahmed and S.C. Nuna (1984), "School Accessibility in India: The Regional Dimension", Occassional Papers, National Institute of Educational Planning and Administration, New Delhi.

Table 2 India — Statewise levels of urbanisation and literacy rates, 1981

India/State/ Union Territory	Level of urbanisation	Level of literacy (%)								
		Total population			Rural population			Urban population		
		Persons	Males	Females	Persons	Males	Females	Persons	Males	Females
India *	23.70	36.23	46.89	24.82	29.65	40.79	17.96	57.40	65.83	47.82
States										
1. Andhra Pradesh	23.32	29.94	39.26	20.39	23.24	32.25	14.08	51.99	61.89	41.55
2. Bihar	12.47	26.20	38.11	13.62	22.50	34.38	10.17	52.18	62.47	39.81
3. Gujarat	31.40	43.70	54.44	32.30	36.20	47.85	24.06	60.31	68.62	5.13
4. Haryana	21.88	36.14	48.20	22.27	30.33	43.44	15.37	56.86	64.95	47.35
5. Himachal Pradesh	7.61	42.48	53.19	31.46	40.42	51.36	29.36	67.44	73.32	60.04
6. Jammu & Kashmir	21.05	26.67	36.29	15.88	21.63	31.64	10.47	45.56	53.55	36.44
7. Karnataka	28.89	38.46	48.81	27.71	31.05	42.06	19.77	56.71	64.98	47.78
8. Kerala	18.74	70.42	75.26	65.73	69.11	74.13	64.25	76.11	80.10	72.20
9. Madhya Pradesh	20.29	27.87	39.49	15.53	21.22	32.91	8.99	54.02	64.41	42.26
10. Maharashtra	35.03	47.18	58.79	34.79	38.15	51.25	24.88	63.82	71.80	54.65
11. Manipur	26.42	41.35	53.29	29.06	37.37	49.33	25.06	52.44	64.30	40.20
12. Meghalaya	18.07	34.08	37.89	30.08	27.45	30.83	23.96	64.12	68.90	58.82
13. Nagaland	15.52	42.57	50.06	33.89	38.59	46.09	30.25	64.23	69.26	56.91
14. Orissa	11.79	34.23	47.10	21.12	31.49	44.51	18.45	54.77	65.13	42.72
15. Punjab	27.68	40.46	47.16	33.69	35.21	41.91	27.63	55.63	60.73	49.72
16. Rajasthan	21.05	24.38	36.30	11.42	17.99	29.65	5.46	48.35	60.55	34.45

17. Sikkim	16.15	34.05	43.65	22.20	30.05	40.25	18.24	54.86	61.44	45.42
18. Tamil Nadu	32.95	46.76	58.26	34.99	38.56	51.16	25.80	63.45	72.50	53.99
19. Tripura	10.99	42.12	51.70	32.00	38.23	48.24	27.64	73.66	79.95	67.09
20. Uttar Pradesh	17.95	27.16	38.76	14.04	23.06	35.18	9.49	45.88	54.73	35.43
21. West Bengal	26.47	40.94	50.67	30.25	33.12	43.58	22.06	62.66	69.08	54.82
Union Territories										
1. Andaman & Nicobar Islands	26.30	51.56	58.72	42.14	46.58	53.94	37.07	65.54	71.69	56.98
2. Arunachal Pradesh	6.56	20.79	28.94	11.32	18.51	26.36	9.60	53.22	60.80	41.18
3. Chandigarh	93.63	64.79	69.00	59.31	44.73	52.29	33.74	66.15	70.19	60.94
4. Dadra & Nagar Haveli	6.63	26.67	36.32	16.78	24.71	34.32	14.91	54.17	62.91	44.28
5. Delhi	92.73	61.54	68.40	53.07	47.56	60.11	32.08	62.64	69.05	54.71
6. Goa, Daman & Diu	32.37	56.66	65.59	47.56	52.68	62.39	43.08	64.99	71.96	57.39
7. Lakshadweep	46.28	55.07	65.24	44.65	51.98	62.25	41.57	58.65	68.66	48.25
8. Mizoram	24.67	59.88	64.46	54.91	55.24	60.19	49.92	74.06	77.26	70.47
9. Pondicherry	52.28	55.85	65.84	45.71	47.98	59.39	36.30	63.04	71.77	54.23

Source: Census of India, 1981.

* Excludes Assam where census could not be held owing to disturbed conditions prevailing there at the time of 1981 Census.

Excludes the population of area under unlawful occupation of Pakistan and China where census could not be taken.

Note: The percentage of literates have been calculated for the total population inclusive of the population in age group 0-4.

category. The other state with an almost equally high percentage of literates is Tamil Nadu which also has a high level of urbanisation. The lowest level of urbanisation is recorded in Himachal Pradesh; the literacy rate, however is relatively high. The hilly character of the state which makes for small settlements is responsible for the low level of urbanisation. Tripura exhibits a similar pattern of low urbanisation but relatively better level of literacy. Amongst the bigger states Orissa and Bihar have the lowest levels of urbanisation. Bihar also has a very low literacy rates — lowest amongst the states at 26.20 per cent. In Orissa the situation is only marginally better with a literacy level of 34.23 per cent. Other states with low levels of literacy are Jammu & Kashmir, Uttar Pradesh, Rajasthan, Madhya Pradesh, Sikkim and Meghalaya. These are also states where the level of urbanisation is low.

Amongst the union territories the level of urbanisation is particularly high in Chandigarh and Delhi. This is because they are city-states. The levels of literacy are correspondingly high. Low levels of urbanisation and concomitant low rates of literacy are seen in Arunachal Pradesh and Dadar and Nagar Haveli (Tables 2 and 3).

Urbanisation and literacy levels are not correlated in Kerala which as discussed earlier is a special case. In addition the leftist government in the state provides a stipend to every child in primary schools which gives an added incentive to the households to send their children to school. The North-Eastern States of Mizoram and Tripura and the hill state of Himachal Pradesh are also regions where a low level of urbanisation is accompanied by a relatively high literacy rate. Rajasthan is another exception where the level of urbanisation is not too low but the literacy level is abnormally low. This may be attributed to two factors: (i) The inaccessibility of some areas and the low threshold of population which cannot support school services; and (ii) The low status accorded to the women and the prevailing Rajput, tradition of keeping women in-doors.

Urban-Rural Literacy Differentials

If urban-rural literacy differentials are examined over a period of time interesting results emerge. At the all India level the differential during the period 1961-81 has marginally narrowed down from 28.1 to 27.7 (Table 4). In most states this differential has decreased over time. However in Andhra Pradesh, Bihar, Madhya Pradesh and Rajasthan there has been an increase in the differentials emphasising the need for greater stress on education in rural areas in these states.

Table 3. India—ranks of states according to levels of urbanisation and literacy rates, 1981

India/State/ Union Territory	Rank			
	Level of urbanisation	Level of literacy		
		Total	Rural	Urban
States				
1. Andhra Pradesh	15	23	24	27
2. Bihar	25	28	26	26
3. Gujarat	8	11	15	15
4. Haryana	16	19	20	17
5. Himachal Pradesh	28	13	9	4
6. Jammu & Kashmir	17	26	27	30
7. Karnataka	9	18	19	18
8. Kerala	20	1	1	1
9. Madhya Pradesh	19	24	28	23
10. Maharashtra	5	9	13	10
11. Manipur	12	15	14	25
12. Meghalaya	21	21	22	9
13. Nagaland	24	12	10	8
14. Orissa	26	20	18	21
15. Punjab	10	17	16	19
16. Rajasthan	17	29	30	28
17. Sikkim	23	22	21	20
18. Tamil Nadu	6	10	11	11
19. Tripura	27	14	12	3
20. Uttar Pradesh	22	25	25	29
21. West Bengal	11	16	17	13
Union Territories				
1. Anadman & Nicobar Islands	13	8	7	6
2. Arunachal Pradesh	30	30	29	24
3. Chandigarh	1	2	8	5
4. Dadra & Nagar Haveli	29	26	23	22
5. Delhi	2	3	6	14
6. Goa, Daman & Diu	7	5	3	7
7. Lakshadweep	4	7	4	16
8. Mizoram	14	4	2	2
9. Pondicherry	3	6	5	12

Source: Census of India, 1981

Table 4 India—urban-rural differentials in literacy rates, 1981

India/State/ Union Territory	Urban-rural difference literacy rate		
	1961	1971	1981
India	28.1	28.7	27.7
States			
1. Andhra Pradesh	24.9	27.9	28.8
2. Bihar	27.1	27.7	29.7
3. Gujarat	24.7	26.6	24.1
4. Haryana	29.9	29.3	26.5
5. Himachal Pradesh	40.0	30.7	27.0
6. Jammu & Kashmir	20.7	24.1	23.9
7. Karnataka	24.2	26.3	25.7
8. Kerala	9.5	7.0	7.0
9. Madhya Pradesh	30.8	32.7	32.8
10. Maharashtra	29.6	27.4	25.8
11. Manipur	22.3	23.4	15.1
12. Meghalaya	40.1	41.8	36.7
13. Nagaland	40.3	37.1	25.6
14. Orissa	24.0	24.9	23.3
15. Punjab	27.4	24.7	20.4
16. Rajasthan	26.8	29.6	30.4
17. Sikkim	29.5	31.4	24.8
18. Tamil Nadu	25.2	24.2	24.9
19. Tripura	35.0	36.9	35.4
20. Uttar Pradesh	25.7	25.5	22.8
21. West Bengal	31.3	30.2	29.5
Union Territories			
1. Andman & Nicobar Islands	21.2	23.2	19.0
2. Arunachal Pradesh	ER	40.7	34.7
3. Chandigarh	37.1	34.3	21.4
4. Dadra & Nagar Haveli	ER	ER	29.5
5. Delhi	31.1	22.7	15.1
6. Goa, Daman & Diu	20.1	15.7	12.3
7. Lakshadweep	ER	ER	6.7
8. Mizoram	23.3	21.1	18.8
9. Pondicherry	25.3	17.6	15.1

Source: O.P. Sharma and Robert D. Rotherford (1987), *Recent Literacy Tends in India*, Occasional Paper No. 1 of 1987, Office of the Registrar General and Census Commissioner, New Delhi.

Note: ER = Entirely rural

If levels of literacy in urban and rural areas are compared it is seen that while at the all India level urban literacy is as high as 57 per cent, rural literacy is only about 30 per cent. Amongst the states Kerala, Himachal Pradesh, Meghalaya, Nagaland, Maharashtra, Tamil Nadu, West Bengal and Gujarat have high urban literacy levels (over 60%) while in rural areas this level is attained in only one state namely, Kerala. In all the other states the rural literacy level is below 40 per cent. Rural literacy is the lowest in Rajasthan at 18.0 per cent while the urban literacy level is the lowest in Jammu & Kashmir at 45.6 per cent. Amongst the Union Territories in most cases both urban and rural literacy rates are fairly high except in Arunachal Pradesh and Dadra and Nagar Haveli.

Urbanisation and Educational Development at the District Level in Maharashtra

Maharashtra is the most urbanised state in India (amongst the major states). With an average level of urbanisation of 35 per cent the literacy rate for the state as a whole is 47 per cent. However wide variations are noted in the urbanisation levels. Greater Bombay district is totally urban while in Ratnagiri only 8 per cent of the population lives in urban areas. The growth of Bombay has itself served to eclipse development in Ratnagiri which is a coastal district. There are three other districts where the urbanisation level is high, namely, Nagpur, Pune and Thane. Nagpur and Pune are important industrial cities while Thane has taken most of the urban spill-over from Bombay. Low levels of urbanisation on the other hand are observed in the Marathwada region, namely the districts of Aurangabad, Parbhani, Bid, Nanded and Osmanabad. These are also districts where the literacy level is low. The Bombay-Pune industrial belt has a much higher literacy rate. So do most of the districts of South Maharashtra. Nagpur and surrounding districts also have relatively higher literacy rates. A gender analysis of literacy rates shows that in the total population the average female literacy rate for the state is 34.79 per cent compared to 58.79 per cent for males. Lower female literacy rates are characteristic of these areas with generally low literacy rates while high female literacy rates are typical of the more developed districts. In Bombay the female literacy rate is especially high because of the totally urban character of the district.

If literacy amongst the migrants is examined it is seen that as many as 61 per cent of the female migrants were recorded as literate by the Census of 1981; nearly 80 per cent of the male migrants are literate, thus even the

Table 5 Maharashtra — Districtwise level of urbanisation and literacy rates, 1981

State/District	Level of urbanisation	Literacy rates								
		Among total population			Among rural population			Among urban population		
		Persons	Males	Females	Persons	Males	Females	Persons	Males	Females
Maharashtra	35.03	47.18	58.79	34.79	38.15	51.25	24.88	63.92	71.80	54.65
1. Greater Bombay	100.00	68.18	73.91	60.75	—	—	—	68.18	73.91	60.75
2. Thane	44.34	50.50	59.64	40.15	38.58	49.36	27.01	65.46	71.83	57.73
3. Raigarh	14.12	45.59	57.42	34.27	42.23	54.62	30.66	66.01	73.06	58.20
4. Ratnagiri	8.10	47.75	59.62	38.15	45.83	57.87	36.29	69.48	77.19	61.77
5. Nasik	31.02	44.36	56.09	31.85	36.64	49.24	23.50	61.53	70.75	51.15
6. Dhule	19.52	37.51	48.61	26.01	32.38	43.71	20.79	58.65	68.18	48.24
7. Jalgaon	25.14	48.14	61.19	34.39	44.37	58.25	29.86	59.37	69.83	48.10
8. Ahmadnagar	12.97	43.16	56.51	29.24	40.12	53.90	25.91	63.55	73.28	52.61
9. Pune	47.33	54.03	65.16	42.14	42.71	56.34	28.91	66.62	74.46	57.75
10. Satara	13.04	48.15	61.39	35.67	45.41	59.12	32.77	66.41	75.28	56.73
11. Sangli	21.52	46.87	59.70	33.60	43.13	56.57	29.41	60.53	70.77	49.39
12. Solapur	29.40	40.68	53.61	26.96	34.91	48.05	21.03	54.55	66.85	41.34
13. Kolhapur	24.82	45.36	59.45	30.79	39.78	55.14	24.31	62.26	71.88	51.51
14. Aurangabad	22.09	35.80	50.80	19.96	30.22	46.21	13.62	55.48	66.39	43.24
15. Parbhani	18.74	30.33	44.67	15.53	26.23	41.03	11.07	48.12	60.11	35.28

16. Bid	15.46	31.79	45.82	17.27	28.19	42.38	13.63	51.50	64.05	37.81
17. Nanded	18.74	29.78	43.32	15.67	25.37	39.16	11.15	48.90	60.92	35.80
18. Osmanabad	15.39	35.36	48.73	21.40	32.37	45.80	18.48	51.80	64.38	38.00
19. Buldana	18.49	44.64	58.68	29.97	41.07	55.83	25.77	60.35	70.98	48.87
20. Akola	24.89	47.82	59.54	35.45	44.22	57.28	30.57	58.66	66.26	50.43
21. Amravati	29.25	51.82	60.50	42.55	47.71	57.03	37.80	61.78	68.84	54.14
22. Yavatmal	15.09	39.29	51.21	26.86	35.51	47.78	22.82	60.57	69.97	50.29
23. Wardha	24.98	51.05	61.01	40.53	46.27	56.75	35.27	65.40	73.64	56.54
24. Nagpur	56.75	54.56	63.74	44.62	41.38	52.18	29.88	64.60	72.42	56.03
25. Bhandara	13.10	43.92	58.31	29.49	41.07	55.93	26.25	62.83	73.75	51.47
26. Chandrapur	12.73	34.69	46.73	22.22	31.28	43.57	18.67	58.06	67.65	47.50

Source: Census of India, 1981

Note: The percentages have been worked out to the total population inclusive of population in the age group 0 to 4 year.

population which migrates to the cities of Maharashtra has a very high literacy rate adding to the supermacy of the cities on this count.

When various educational levels are considered the disparities between the districts of the state narrow down. Literates without any educational level form roughly 20 per cent of the literate population in each district while persons with primary education account for between 20 per cent and 30 per cent of the total population. In the less developed districts of Maharashtra and some of the southern districts this percentage approaches 30 per cent indicating the higher level of drop-outs after this level. About 20-25 per cent of the literates are educated up to the secondary school level. This percentage is especially high in Greater Bombay and Pune indicating the generally higher level of education. Graduates form less than 10 per cent of the literates in all the districts varying from a low of less than 4 per cent in Akola, Bhandara and Buldana to a high of nearly 9 per cent in Aurangabad. Post-graduates and other higher qualifications have been obtained by a negligible proportion of the literates — just about one to two per cent.

Tamil Nadu

Tamil Nadu, with about 33 per cent of its population living in urban areas, has a literacy level of nearly 47 per cent. As in Maharashtra district-level variations in urbanisation are pronounced with values varying from a low of 9 per cent in Dharamapuri to cent per cent in Madras (Table 6). Coimbatore and the Nilgiris are two other districts with large urban populations — about 50 per cent of the people in these regions live in urban areas. The variations in literacy levels are however not as wide as in Maharashtra. The correlation between urbanisation and literacy is very strong and it is the districts with low levels of urbanisation Dharamapuri, Pudukkottai and South Arcot — which have low levels of literacy. In Madras over 68 per cent of the population is literate, in Kannyakumari this percentage is nearly 64 per cent. Kannyakumari is an exceptional case of low urbanisation and relatively better literacy level. This is primarily due to the high rural literacy level, which at nearly 62 per cent, is the highest in the state. In all other districts the rural literacy rate is lower than 50 per cent.

The analysis of female literacy shows that only 35 per cent of the females are literate compared to over 58 per cent of the males. Female literacy is high in Madras and Kanniyakumari and low in Dharmapuri, South Arcot and Pudukkottai. The male-female differentials in literacy is

Table 6 Tamil Nadu — Districtwise levels of urbanisation and literacy rates 1981

India/State/ Union Territory	Level of urbanisation	Level of literacy (%)								
		Among total population			Among rural population			Among urban population		
		Persons	Males	Females	Persons	Males	Females	Persons	Males	Females
1	2	3	4	5	6	7	8	9	10	11
Tamil Nadu	32.95	46.76	58.26	34.99	38.56	51.16	25.80	63.45	72.50	53.99
1. Madras	100.00	68.40	75.60	60.69	—	—	—	68.40	75.60	60.69
2. Chengalpattu	38.93	48.00	59.72	35.75	38.72	51.44	25.66	62.56	72.44	51.94
3. North Arcot	23.01	40.89	53.48	28.04	36.14	49.50	22.50	56.80	66.78	46.60
4. South Arcot	15.70	36.78	49.38	23.81	32.16	45.33	18.64	61.57	71.04	51.73
5. Dharmapuri	9.37	29.00	38.98	18.60	26.24	36.26	15.81	55.67	65.07	45.75
6. Salem	28.93	39.29	49.95	28.07	32.69	43.69	21.11	55.51	65.31	45.18
7. Periyar	22.01	39.81	51.76	27.31	34.33	46.67	21.47	59.25	69.63	48.21
8. Coimbatore	50.46	53.10	64.04	41.59	41.94	54.34	29.14	64.06	73.39	54.05
9. Nilgiri	48.85	56.52	67.74	44.79	51.21	63.93	38.28	62.08	71.62	51.82
10. Madurai	36.24	47.36	59.48	34.94	38.13	51.79	24.26	63.61	72.82	54.00
11. Tiruchirappalli	26.13	45.62	58.43	32.61	38.00	52.06	23.86	67.16	76.13	57.81
12. Thanjavur	23.06	50.36	62.63	37.94	45.93	59.11	32.59	65.13	74.39	55.77
13. Pudukottai	13.28	38.69	53.64	23.86	34.88	50.49	19.45	63.61	73.89	53.11
14. Ramanathapuram	28.21	45.32	58.92	32.02	38.90	53.58	24.75	61.64	72.19	50.97
15. Tirunelveli	34.64	52.14	63.30	41.45	47.17	59.07	35.94	61.53	71.12	52.08
16. Kanniyakumari	17.25	63.85	68.55	59.08	61.80	66.63	56.90	73.68	77.85	69.47

Source: Census of India, 1981

Note: The percentages have been calculated on the total population inclusive of the population in age roup 0-4.

more than 20 per cent points in most of the districts. It is lower than this level in Madras and Kanniyakumari.

Table 10 gives the levels of education for Tamil Nadu by rural and urban residence. In the literates without educational level category, the rural urban hiatus is pronounced with a difference of over 10 per cent points in the average value for the state as a whole. This category is much larger in the rural areas and in Dharamapuri and Pudukkottai over 38 per cent of the literates are in this category revealing the lack of schooling facilities. If primary level educational attainment is considered both rural and urban areas have between 30 to 40 per cent of their literates in the class. Hence in some districts nearly 80 per cent of the literates in rural areas have only received schooling up to the primary level. In urban areas this percentage is somewhat lower at 50 to 60 per cent. Only 10 per cent of the literates have studied up to the matriculation level in rural areas and about 20 per cent in urban areas. In the urban areas about five per cent of the literates are educated up to the graduate level and above; for rural areas this percentage is about one only. In the urban areas this category is better represented in Madras; amongst the rural areas Kannyakumari ranks first. The variation between districts is however minimal if Madras is not considered.

Orissa

Orissa situated on the Eastern coast is a generally backward state with a low level of urbanisation, the average for the districts being only 11.79 per cent. The literacy level at 34.23 per cent is also lower than the average for the country. The more developed districts of Puri, Cuttack and Baleshwar have higher literacy rates (Table 7). Although Baleshwar has a low level of urbanisation the proximaty to Calcutta and Kharagpur has served as a stimulus for the development of the area. Literacy levels are particularly low in Kalahandi and Koraput which have a large tribal population and hilly topography which makes many of the villages inaccessible in the rainy season.

The rural literacy rate is 31.49 per cent compared to the urban literacy rate of 54.77 per cent for the state as a whole. Rural literacy is particularly low in Kalahandi and Korput districts. Higher rural literacy rates are characteristic of Puri, Cuttack and Baleshwar. Puri and Cuttack are the political, cultural and economic centres of the state, and hence have a much higher literacy rate.

The male-female literacy differential is especially pronounced in

Table 7 Orissa — Districtwise level of urbanisation and literacy rates, 1981

State/District	Level of urbanisation	Literacy rates (%)								
		Among total population			Among rural population			Among urban population		
		Persons	Males	Females	Persons	Males	Females	Persons	Males	Females
Orissa	11.79	34.23	47.10	21.12	31.49	44.51	18.45	54.77	65.13	42.72
Sambalpur	15.49	33.83	47.73	19.54	30.81	45.02	16.47	50.31	61.72	37.33
Sundargarh	30.60	36.17	47.36	24.15	26.82	38.15	15.36	57.37	66.43	46.23
Kendujhar	11.34	30.22	42.98	17.24	28.13	40.89	15.34	46.64	58.24	33.26
Mayurbhanj	5.72	25.71	37.39	13.90	23.76	35.41	12.09	57.81	67.57	46.32
Baleshwar	8.25	42.06	55.55	28.26	41.38	55.09	27.48	49.64	60.38	37.47
Cuttack	10.28	45.43	58.12	32.37	43.69	56.68	30.65	60.58	69.40	49.41
Dhenkanal	7.82	36.88	51.58	21.54	35.14	50.01	19.89	57.42	68.28	43.43
Phulabani	5.26	27.08	42.70	11.44	25.33	40.94	9.82	58.49	72.19	42.79
Balangir	9.13	25.63	39.84	11.31	23.33	37.62	9.01	48.60	61.22	35.03
Kalahandi	6.01	19.42	31.28	7.68	17.76	29.47	6.23	45.33	58.50	31.26
Koraput	11.31	16.13	23.63	8.57	12.27	19.25	5.31	46.32	56.74	35.15
Ganjam	14.25	31.31	45.98	17.08	27.77	42.78	13.40	52.60	64.35	40.27
Puri	14.79	45.50	59.28	31.15	42.38	56.91	27.65	63.51	71.78	53.41

Source: Census of India, 1981

Note: The percentages have been calculated on the total population inclusive of the population in age group 0-4.

Table 8 Bihar — Districtwise levels of urbanisation and literacy rates, 1981

State/District	Level of urbani-sation	Literacy rates								
		Among total population			Among rural population			Among urban population		
		Persons	Males	Females	Persons	Males	Females	Persons	Males	Females
1	2	3	4	5	6	7	8	9	10	11
Bihar	12.47	26.20	38.11	13.62	22.50	34.38	10.17	52.18	62.47	39.81
1. Patna	37.12	39.74	52.36	25.54	30.17	44.11	15.15	55.94	65.62	44.25
2. Nalanda	13.60	32.92	46.55	18.23	30.26	44.23	15.25	49.87	61.04	37.46
3. Nawada	6.65	26.53	40.31	12.77	25.02	38.92	11.23	47.80	59.03	35.54
4. Gaya	10.85	30.07	44.33	15.25	27.32	41.86	12.38	52.70	63.66	40.18
5. Aurangabad	6.94	28.49	42.50	13.83	27.01	41.06	12.38	48.32	61.06	33.99
6. Rohtas	9.72	30.55	44.15	15.57	28.42	42.14	13.45	50.29	62.08	36.19
7. Bhojpur	0.72	31.35	46.68	15.12	29.16	44.79	12.76	49.32	61.77	35.65
8. Saran	8.13	27.28	42.83	12 03	25.69	41.37	10.51	45.28	57.99	30.77
9. Siwan	4.41	23.71	37.66	10.66	22.62	36.60	9.66	47.38	58.37	35.03
10. Gopalganj	4.99	21.37	34.33	8.48	20.47	33.40	7.69	38.44	51.10	24.42
11. Paschim Champaran	7.33	18.79	27.76	8.94	16.74	25.66	7.00	44.62	53.65	34.19
12. Purbi Champaran	4.65	19.33	29.15	8.72	17.92	27.67	7.46	48.20	57.77	36.62
13. Sitamarhi	4.52	19.57	28.77	9.71	18.46	27.51	8.82	42.96	54.21	29.71
14. Muzaffarpur	8.08	24.26	34.88	13.23	21.12	31.71	10.29	59.93	67.70	50.27
15. Vaishali	6.48	25.56	38.38	12.67	24.59	37.45	11.75	39.50	50.98	26.68

16. Begusarai	10.58	26.07	36.33	15.15	23.89	33.95	13.27	44.45	55.75	31.64
17. Samastipur	4.16	24.86	36.62	12.77	23.56	35.29	11.56	54.91	65.39	42.64
18. Darbhanga	8.78	23.94	35.0	12.63	21.32	32.15	10.37	51.20	62.94	37.73
19. Madhubani	3.11	21.75	33.79	9.49	21.10	33.08	8.96	41.75	54.45	27.02
20. Saharsa	5.72	20.26	30.59	9.16	18.90	29.05	8.06	42.81	54.32	28.66
21. Purnia	7.98	19.27	28.41	9.39	17.14	26.13	7.52	43.88	53.17	32.55
22. Katihar	9.42	21.03	30.03	11.34	17.97	26.72	8.69	50.46	59.70	39.03
23. Munger	14.08	26.66	38.03	14.35	23.13	34.31	11.14	48.18	60.10	34.57
24. Bhagalpur	11.72	27.48	38.11	15.80	24.31	34.88	12.81	51.34	61.52	39.34
25. Santhal Pargana	6.89	22.26	33.49	10.52	19.80	30.91	8.29	55.48	66.18	42.83
26. Dhanbad	50.62	39.16	52.17	23.18	26.37	41.38	9.58	51.63	61.85	37.87
27. Giridih	14.26	23.91	37.48	10.01	19.88	33.53	6.26	48.18	59.16	34.94
28. Hazaribagh	15.11	23.51	35.61	10.91	18.61	30.57	6.64	51.03	60.64	38.50
29. Palamau	5.64	20.41	31.22	9.11	18.51	29.22	7.40	52.22	62.50	39.94
30. Ranchi	20.92	31.41	42.78	19.62	23.72	35.03	12.41	60.49	69.75	49.46
31. Singhbhum	32.07	34.59	46.93	21.50	22.91	36.15	9.55	59.36	68.09	49.02

Source: Census of India, 1981.

Orissa — at 26 per cent points this is the highest differential amongst the states of the Indian union. Female literacy in Koraput and Kalahandi is very low. It is also low in Phulabani and Balangir. Higher rates characterise the better developed districts but here too there is a wide chasm between the males and females.

An examination of educational attainment (Table 11) shows that a sizeable proportion of the literates are in the 'literates without education level' category. This is especially true of the rural areas. About 50 per cent of the literate village dwellers in Kendujhar, Balangir, Phulbani Kalahandi and Ganjam districts are in this class. In urban areas, this category accounts for 20 to 30 per cent of the literates with the exception of Koraput where this percentage is very low. Literates educated up to the primary level account for 29 per cent of the total literates in rural areas and about 23 per cent in urban areas. Thus the two lowest levels of education account for 70-80 per cent of the literates in rural areas and about 40-50 per cent of the literates in urban areas. The primary group is especially large in both the urban and rural areas in Koraput indicating the spread of primary education. Surprisingly in Koraput district as many as 6 per cent of the literates in rural areas and 17 per cent in urban areas were educated up to the matriculation/secondary level. The category graduates and above is negligible in rural areas — around one per cent and — very small in urban areas — about 7 per cent. The two districts where this category is well represented in urban areas are the developed districts of Puri and Cuttack.

Bihar

Although the level of urbanisation in Bihar is marginally higher than that of Orissa the level of literacy is much lower at 26.20 per cent. The literacy level varies from nearly 40 per cent in Bihar to only about 18 per cent in Paschim Champaran. The districts bordering Nepal have both low levels of urbanisation as well as low literacy rates. In Palamu which has a large tribal population the literacy level is also low. In the other district of the Chota Nagpur plateau the growth of mineral based towns and concomitant expansion of industry has helped reduce the level of illiteracy. In addition Christian missionaries have established themselves well in the region and have opened up a number of schools.

There is a large rural-urban differential in literacy rate — as much as 30 per cent points for the state as a whole. This differential is especially large in the districts of the Chota Nagpur plateau. Ranchi, for example, has an urban literacy rate of 60 per cent; the rural rate is only 23 per cent.

Economic development in this area is limited to the towns and the rural areas are largely undeveloped. It has been said that 10 miles out of a town in this region is like travelling 500 years back in time.

The male-female differential is also very large for the state as a whole. The male literacy rate is 38 per cent while the corresponding figure for females is less than 14 per cent. Female literacy is very low in most of the districts of north Bihar especially those bordering Nepal. The highest female literacy (25.5%) is noted in Patna followed by 23 per cent in Dhanbad and 21 per cent in Singhbhum. Although female literacy in the rural areas is low in these districts the urban females have a relatively higher literacy level.

Table 12 gives the literates by level of education in Bihar. 'Literates without educational level' account for 30-45 per cent of total literates. This category is relatively large in the less developed districts indicating the need for expansion of educational facilities in these areas. In the urban areas too this category is almost as large emphasising the educational backwardness of the state. Twenty one per cent oi the urban literates and thirteen per cent of the urban literates have been educated only up to the primary level. These percentages are distinctly higher in the Chota Nagpur plateau region. Fourteen per cent of the literates in urban areas and nearly twenty one per cent in rural areas have completed secondary school. Inter-district variations are however very small. As in the other states, graduates form a very small proportion of total literates — less then two per cent in rural areas and about 5 per cent in urban areas. Inter-district variations in the rural figures are very small but in the case of urban areas Patna and a few other districts have a larger proportion of graduates.

Implications for Planning

1. Urban areas have a distinctly higher literacy rate than rural areas. In order to reduce regional disparities it is important that more schools be opened especially in areas identified as backward in the NPE.
2. The question is not so much of enrolment but of retention of children in schools. This involves the quality of education offered and implies making education more relevant to the life-styles of the population. In addition basic facilities such as pucca class-rooms, chalks, blackboards, etc. should be provided in every school.
3. In order to motivate people to send their girl children to school it

Table 9 Maharashtra — Level of education

Districts	Literates		Literates without educational level				Primary		Middle	
			Non formal		Formal					
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
1	2	3	4	5	6	7	8	9	10	11
Maharashtra	100.00	100.00	1.55	0.87	34.22	19.49	33.43	24.84	19.62	22.71
1. Greater Bombay	100.00	100.00	-	0.99	-	17.62	-	22.83	-	22.25
2. Thane	100.00	100.00	1.67	1.13	32.99	18.64	29.76	22.37	19.09	21.27
3. Raigarh	100.00	100.00	1.36	0.68	37.98	22.67	33.69	26.29	18.25	23.29
4. Ratnagiri	100.00	100.00	1.28	0.75	37.07	22.29	35.82	26.31	18.03	23.00
5. Nasik	100.00	100.00	1.23	0.52	33.01	21.02	32.86	25.52	20.20	23.56
6. Dhule	100.00	100.00	1.02	0.78	35.74	22.26	33.59	27.97	18.51	24.38
7. Jalgaon	100.00	100.00	1.09	0.68	32.10	22.24	33.36	26.82	20.43	24.38
8. Ahmadnagar	100.00	100.00	1.38	0.68	33.10	19.23	33.37	24.57	19.41	22.51
9. Pune	100.00	100.00	1.45	0.63	33.54	19.22	32.52	23.17	20.72	21.96
10. Satara	100.00	100.00	1.01	0.75	30.89	20.19	33.06	24.58	21.83	23.14
11. Sangli	100.00	100.00	0.90	0.32	29.02	20.28	33.31	26.38	21.93	23.10
12. Solapur	100.00	100.00	0.76	0.65	34.91	21.50	33.28	28.96	19.86	23.43
13. Kolhapur	100.00	100.00	1.72	0.53	30.46	20.58	32.62	25.69	21.09	24.21
14. Aurangabad	100.00	100.00	2.31	0.60	33.63	20.56	35.04	24.94	18.83	22.49
15. Parbhani	100.00	100.00	4.73	1.62	39.53	25.25	32.14	26.65	16.50	22.71
16. Bid	100.00	100.00	3.08	0.91	34.96	22.64	32.18	26.63	19.21	24.42
17. Nanded	100.00	100.00	4.22	1.44	37.03	25.12	30.62	25.55	18.24	22.06
18. Osmanabad	100.00	100.00	2.29	1.36	31.23	24.12	31.93	25.61	22.38	23.85
19. Buldana	100.00	100.00	0.98	1.19	38.17	22.91	33.40	28.79	19.06	24.00
20. Akola	100.00	100.00	1.17	0.79	33.89	21.22	36.06	30.79	19.23	24.15
21. Amravati	100.00	100.00	0.83	0.67	31.80	22.25	33.83	29.85	22.98	24.04
22. Yavatmal	100.00	100.00	1.91	0.61	37.36	20.99	33.00	28.87	18.79	23.83
23. Wardha	100.00	100.00	1.26	0.23	34.77	20.80	33.67	28.66	20.09	26.39
24. Nagpur	100.00	100.00	1.85	0.99	35.64	19.33	34.30	29.21	18.69	22.89
25. Bhandara	100.00	100.00	1.33	0.54	37.08	22.31	36.84	30.60	16.17	22.23
26. Chandrapur	100.00	100.00	1.63	0.80	38.71	23.63	33.36	26.93	17.25	24.06

Source: Census of India.

Districts		Matr/Sec.		Hr.Sec/Inter/PUC		Non-Technical		Technical		Graduate & above	
		Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
1		12	13	14	15	16	17	18	19	20	21
Maharashtra		7.93	19.33	1.39	4.88	0.96	0.10	0.51	1.06	1.29	6.72
1.	Greater Bombay	-	22.15	-	5.39	-	0.17	-	0.88	-	7.88
2.	Thane	12.31	24.40	1.55	4.43	0.01	0.02	0.80	1.26	1.82	6.43
3.	Raigarh	6.73	18.27	0.64	3.20	0.01	0.01	0.57	1.22	0.77	4.37
4.	Ratnagiri	6.09	18.33	0.62	3.43	0.01	0.01	0.30	0.75	0.78	5.13
5.	Nasik	8.97	18.27	1.59	3.92	0.01	0.04	0.98	1.89	1.15	5.26
6.	Dhule	8.15	15.46	1.13	3.61	0.15	0.05	0.87	1.30	0.84	4.19
7.	Jalgaon	9.50	17.09	1.25	3.85	0.02	0.01	0.99	1.09	1.26	3.86
8.	Ahmadnagar	8.06	16.38	2.47	7.70	0.02	0.07	0.64	1.55	1.55	6.81
9.	Pune	7.75	18.76	2.08	6.04	0.01	0.01	0.57	2.06	1.36	8.15
10.	Satara	9.34	17.99	1.69	4.63	0.03	0.05	0.75	1.64	1.66	6.77
11.	Sangli	9.99	17.39	1.86	5.32	0.02	0.05	0.96	1.06	2.01	6.10
12.	Solapur	7.95	15.61	1.07	3.74	0.01	0.01	0.78	1.08	1.38	5.02
13.	Kolhapur	10.50	18.30	1.42	3.81	0.02	0.04	0.37	0.63	1.88	6.21
14.	Aurangabad	6.87	16.17	0.92	4.93	0.02	0.03	0.33	1.55	1.25	8.73
15.	Parbhani	5.04	13.64	0.84	4.18	0.18	0.31	0.10	0.46	0.94	5.18
16.	Bid	7.18	13.80	1.23	4.57	0.01	0.01	0.45	1.38	1.70	5.64
17.	Nanded	6.58	14.15	1.52	4.36	0.26	0.41	0.13	0.84	1.40	6.07
18.	Osmanabad	8.18	14.02	1.66	4.60	0.45	0.32	0.15	0.62	1.73	5.50
19.	Buldana	6.53	14.49	0.81	3.98	0.15	0.20	0.16	0.54	0.74	3.90
20.	Akola	6.79	14.81	1.58	3.96	0.07	0.08	0.19	0.45	1.02	3.75
21.	Amravati	7.53	14.03	1.59	3.91	0.16	0.23	0.12	0.52	1.16	4.50
22.	Yavatmal	6.54	16.53	1.13	3.83	0.00	0.03	0.30	0.93	0.97	4.38
23.	Wardha	7.05	14.72	1.25	3.97	0.05	0.02	0.34	1.00	1.52	4.21
24.	Nagpur	6.83	15.62	1.19	4.34	0.02	0.42	0.94	1.06	6.66	
25.	Bhandara	6.36	15.40	1.09	3.98	0.01	0.02	0.30	0.95	0.82	3.97
26.	Chandrapur	6.20	15.04	1.27	4.07	0.00	0.03	0.24	0.96	1.34	4.48

Table 10 Tamil Nadu — Level of education

Districts		Literates		Literates without educational level				Primary		Middle	
				Non formal		Formal					
		Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
1		2	3	4	5	6	7	8	9	10	11
Tamil Nadu		100.00	100.00	1.90	0.63	34.40	22.25	38.04	30.91	12.31	16.71
1.	Madras	100.00	100.00	-	0.83	-	18.06	-	26.20	-	18.02
2.	Chengalpattu	100.00	100.00	2.35	0.82	33.29	21.49	35.42	28.36	14.08	17.17
3.	North Arcot	100.00	100.00	2.00	0.82	32.85	23.07	38.96	32.85	13.29	16.75
4.	South Arcot	100.00	100.00	1.81	0.49	34.03	21.85	39.05	30.80	12.24	17.57
5.	Dharmapuri	100.00	100.00	3.44	0.75	38.24	23.08	34.70	31.29	11.05	15.58
6.	Salem	100.00	100.00	1.61	0.52	32.25	24.96	37.39	33.34	12.74	15.44
7.	Periyar	100.00	100.00	1.88	0.46	36.36	23.53	38.28	33.66	10.85	15.77
8.	Coimbatore	100.00	100.00	1.12	0.60	35.88	24.12	37.31	32.01	11.38	14.99
9.	Nilgiri	100.00	100.00	0.69	0.41	31.68	27.80	31.53	32.35	15.31	15.87
11.	Madurai	100.00	100.00	1.60	0.35	34.66	22.71	39.93	33.00	12.18	17.04
12.	Tiruchirapalli	100.00	100.00	1.23	0.43	34.29	20.87	37.84	31.14	12.77	17.12
13.	Thanjavur	100.00	100.00	1.74	0.51	33.50	23.51	38.32	32.89	13.22	16.23
14.	Pudukottai	100.00	100.00	3.01	0.51	38.71	22.23	38.41	31.89	9.97	16.66
15.	Ramanathapuram	100.00	100.00	2.77	0.85	34.59	24.67	40.80	33.82	11.07	16.03
16.	Tirunelveli	100.00	100.00	2.08	0.51	36.16	25.17	40.45	34.72	11.41	16.55
17.	Kannyakumari	100.00	100.00	1.36	0.61	33.13	27.10	32.27	30.98	12.18	13.47

Source: Census of India 1981

Districts	Matr /Sec.		Hr.Sec/Inter/PUC		Non-Technical		Technical		Graduate & above	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
1	12	13	14	15	16	17	18	19	20	21
Tamil Nadu	10.30	19.54	1.59	4.51	0.05	0.07	0.28	0.73	1.14	4.65
1. Madras	-	22.75	-	5.55	-	0.07	-	0.94	-	7.54
2. Chengalpattu	11.85	22.59	1.49	4.32	0.04	0.08	0.34	1.05	1.5	4.12
3. North Arcot	10.44	18.31	1.35	4.34	0.05	0.05	0.17	0.47	0.89	3.34
4. South Arcot	10.27	20.27	1.29	4.23	0.07	0.08	0.21	0.78	1.03	3.93
5. Dharmapuri	9.89	20.34	1.48	4.33	0.03	0.12	0.21	0.86	0.96	3.65
6. Salem	11.70	17.46	2.40	4.14	0.06	0.07	0.22	0.58	1.63	3.49
7. Periyar	9.62	18.85	1.77	3.85	0.05	0.06	0.15	0.39	1.04	3.43
8. Coimbatore	10.91	18.81	1.82	4.53	0.05	0.08	0.25	0.73	1.28	4.13
9. Nilgiri	16.12	16.87	2.44	3.00	0.03	0.03	0.47	0.50	1.73	3.17
11. Madurai	8.66	17.52	1.60	4.64	0.06	0.09	0.15	0.48	1.16	4.17
12. Tiruchirapalli	11.07	20.87	1.39	4.52	0.07	0.16	0.34	0.90	1.00	3.99
13. Thanjavur	10.51	18.15	1.48	4.34	0.04	0.07	0.15	0.56	1.04	3.75
14. Pudukottai	8.11	19.65	0.92	4.19	0.04	0.04	0.08	0.48	0.75	4.38
15. Ramanathapuram	8.00	16.73	1.50	3.75	0.02	0.05	0.19	0.59	1.06	3.51
16. Tirunelveli	7.40	15.69	1.15	3.44	0.04	0.03	0.47	0.72	0.84	3.17
17. Kannyakumari	15.07	17.89	2.64	4.13	0.15	0.11	0.96	0.72	2.24	4.99

Table 11 Orissa — Level of education

Districts		Literates		Literates without educational level Non formal		Formal		Primary		Middle	
		Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
1		2	3	4	5	6	7	8	9	10	11
Orissa		100.00	100.00	3.69	1.14	41.79	24.59	29.06	22.90	17.74	24.50
1.	Sambalpur	100.00	100.00	2.65	1.25	45.32	27.63	30.31	22.66	15.45	24.45
2.	Sundargarh	100.00	100.00	1.91	0.95	42.31	27.41	21.59	18.00	24.45	28.32
3.	Kendujhar	100.00	100.00	5.42	2.12	47.13	29.60	19.24	17.38	21.66	27.13
4.	Mayurbhanj	100.00	100.00	2.00	0.81	37.88	22.13	27.37	18.64	23.81	25.80
5.	Baleshwar	100.00	100.00	2.59	2.19	37.68	26.28	30.99	23.21	19.61	23.47
6.	Cuttack	100.00	100.00	3.94	1.04	37.25	23.45	29.44	21.55	20.05	24.90
7.	Dhenkanal	100.00	100.00	1.95	0.64	47.19	26.28	28.96	21.94	15.25	22.83
8.	Phulbani	100.00	100.00	3.67	0.45	47.70	23.47	29.03	24.52	14.65	25.45
9.	Balangir	100.00	100.00	5.52	0.85	46.41	24.38	28.82	23.56	14.02	26.79
10.	Kalahandi	100.00	100.00	4.37	1.42	47.23	25.79	26.85	25.01	15.22	22.76
11.	Koraput	100.00	100.00	5.57	0.96	35.63	15.21	37.41	37.09	12.78	19.30
12.	Ganjam	100.00	100.00	3.89	0.69	45.86	26.52	30.74	26.20	13.47	23.37
13.	Puri	100.00	100.00	4.86	1.45	43.72	22.79	28.48	21.12	16.10	23.68

Source: Census of India 1981

Districts	Matr /Sec.		Hr.Sec/Inter/PUC		Non-Technical		Technical		Graduate & above	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
1	12	13	14	15	16	17	18	19	20	21
Orissa	4.93	13.84	1.03	4.94	N	0.01	0.65	1.22	1.11	6.86
1. Sambalpur	4.10	13.11	0.71	4.28	N	0.01	0.61	0.85	0.85	5.76
2. Sundargarh	6.00	13.76	1.18	4.05	-	0.01	1.23	1.75	1.33	5.75
3. Kendujhar	3.73	12.00	0.94	4.80	0.01	-	0.70	1.96	1.17	5.01
4. Mayurbhanj	5.83	16.40	1.08	7.60	N	0.01	0.86	1.04	1.17	7.57
5. Baleshwar	5.65	12.30	1.29	5.77	0.01	0.03	0.76	0.98	1.42	5.77
6. Cuttack	6.04	14.55	1.37	5.54	0.01	-	0.59	0.75	1.31	8.22
7. Dhenkanal	4.11	14.03	0.88	5.14	0.01	-	0.68	1.55	0.97	7.59
8. Phulbani	3.33	14.51	0.43	4.74	N	-	0.50	0.75	0.69	5.61
9. Balangir	3.38	12.70	0.54	4.19	0.01	0.02	0.67	1.33	0.63	6.18
10. Kalahandi	4.14	14.66	0.58	4.57	-	0.02	0.75	0.99	0.86	4.78
11. Koraput	5.99	17.49	0.80	3.40	-	0.02	0.67	2.29	1.15	4.24
12. Ganjam	3.91	12.11	0.75	4.59	-	-	0.55	1.16	0.83	5.36
13. Puri	4.26	13.65	1.02	5.92	-	0.05	0.52	0.95	1.04	10.39

Table 12 Bihar — level of education

Districts		Literates		Literates without educational level				Primary		Middle	
				Non formal		Formal					
		Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
1		2	3	4	5	6	7	8	9	10	11
Bihar		100.00	100.00	4.01	3.89	32.78	31.73	21.57	13.56	22.33	22.07
1.	Patna	100.00	100.00	2.66	3.00	31.73	23.32	16.25	11.99	11.99	23.35
2.	Nalanda	100.00	100.00	8.72	8.36	26.94	27.06	16.63	14.33	23.23	22.39
3.	Nawada	100.00	100.00	4.81	3.78	29.60	31.32	26.51	14.53	22.71	22.74
4.	Gaya	100.00	100.00	4.94	5.07	29.40	24.86	24.76	13.17	22.41	21.77
5.	Aurangabad	100.00	100.00	3.44	3.31	30.37	35.57	24.17	14.26	22.45	18.82
6.	Rohtas	100.00	100.00	3.99	3.16	27.31	29.68	25.55	14.27	23.32	21.83
7.	Bhojpur	100.00	100.00	2.55	3.41	35.21	27.58	17.90	14.55	22.93	21.29
8.	Sara	100.00	100.00	2.07	2.07	38.36	28.62	17.38	14.52	22.16	22.21
9.	Siwan	100.00	100.00	4.62	4.74	39.07	29.09	17.57	15.02	21.05	23.61
10.	Gopalganj	100.00	100.00	4.06	2.03	36.20	31.50	19.67	14.26	21.61	21.58
11.	Pas Champaran	100.00	100.00	3.06	5.08	37.98	27.98	21.31	14.45	19.87	22.06
12.	Purbi Champaran	100.00	100.00	3.32	1.05	35.79	26.88	19.84	14.37	21.55	22.51
13.	Sitamarhi	100.00	100.00	3.39	5.46	36.18	25.65	18.92	14.27	21.99	23.32
14.	Muzaffarpur	100.00	100.00	4.73	2.07	34.66	21.16	17.04	10.97	22.72	21.63
15.	Vaishali	100.00	100.00	4.28	5.09	36.31	29.20	16.88	14.28	21.84	23.98
16.	Begusarai	100.00	100.00	5.39	2.88	33.59	25.54	17.41	15.07	21.80	22.71
17.	Samastipur	100.00	100.00	3.53	1.58	37.53	25.11	17.50	13.06	20.82	21.85
18.	Darbhanga	100.00	100.00	5.65	3.21	33.38	26.30	18.80	13.72	22.10	21.30
19.	Madhubani	100.00	100.00	6.03	3.27	32.82	24.70	17.13	12.54	21.63	26.86
20.	Saharsa	100.00	100.00	3.59	2.98	32.92	21.64	18.05	11.74	24.52	23.09
21.	Purnia	100.00	100.00	7.38	1.74	34.89	27.17	18.88	15.20	22.22	24.06
22.	Katihar	100.00	100.00	4.33	6.24	36.33	21.68	19.80	13.83	21.84	25.04
23.	Munger	100.00	100.00	4.25	2.42	26.16	25.31	26.29	15.60	23.30	22.80
24.	Bhagalpur	100.00	100.00	4.68	3.14	25.98	21.42	25.08	15.70	24.50	24.38
25.	Santhal Pargana	100.00	100.00	1.94	1.95	34.94	26.88	28.66	14.96	19.83	22.79
26.	Dhanbad	100.00	100.00	2.83	2.63	30.29	26.65	24.86	13.44	22.58	21.13
27.	Giridih	100.00	100.00	4.79	1.63	35.73	30.35	25.47	15.06	19.27	22.43
28.	Hazaribagh	100.00	100.00	3.49	1.79	33.94	27.56	26.45	15.61	19.38	23.49
29.	Palmau	100.00	100.00	3.81	2.98	33.84	26.22	25.66	13.52	20.93	22.16
30.	Ranchi	100.00	100.00	1.71	2.61	31.37	25.06	26.38	11.96	24.73	21.78
31.	Singhbhum	100.00	100.00	1.65	3.41	29.61	24.06	27.34	13.09	24.43	21.68

Source: Census of India 1981.

Districts		Matr /Sec.		Hr.Sec/Inter/PUC		Non-Technical		Technical		Graduate & above	
		Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
1		12	13	14	15	16	17	18	19	20	21
Bihar		14.32	20.83	2.77	6.87	8.18	0.08	0.35	0.53	1.69	7.39
1.	Patna	21.10	21.45	3.55	7.93	0.10	0.10	0.19	0.28	2.04	10.83
2.	Nalanda	19.22	18.82	3.07	5.07	0.04	0.03	0.35	0.14	1.80	3.80
3.	Nawada	12.54	17.41	2.24	5.65	0.12	0.01	0.25	0.26	1.22	4.30
4.	Gaya	14.11	21.14	2.24	5.65	0.03	0.05	0.26	0.27	1.44	6.83
5.	Aurangabad	15.40	18.58	2.55	5.06	0.02	0.13	0.33	0.41	1.27	3.86
6.	Rohtas	14.58	18.83	3.06	5.83	0.01	0.08	0.35	0.42	1.83	5.89
7.	Bhojpur	16.83	19.27	2.85	7.28	0.02	0.10	0.21	0.25	1.50	6.27
8.	Sara	15.78	19.51	2.64	6.85	0.02	0.06	0.20	0.22	1.39	5.94
9.	Siwan	13.77	16.32	2.20	5.67	0.09	0.02	0.21	0.23	1.42	5.30
10.	Gopalganj	14.28	18.77	2.50	5.84	0.03	0.01	0.27	0.65	1.38	5.36
11.	Pas Champaran	12.91	18.95	2.54	5.48	0.40	0.07	0.28	0.53	1.65	5.40
12.	Purbi Champaran	14.86	20.76	2.50	6.88	0.59	0.05	0.07	0.23	1.48	7.27
13.	Sitamarhi	13.31	19.46	2.89	6.20	1.31	0.11	0.18	0.17	1.83	5.36
14.	Muzaffarpur	15.35	21.76	3.06	9.18	0.36	0.04	0.14	0.48	1.94	12.71
15.	Vaishali	15.64	16.81	3.00	5.81	0.04	-	0.23	0.43	1.78	4.40
16.	Begusarai	15.00	20.46	3.99	7.66	0.16	0.05	0.46	0.26	2.20	5.37
17.	Samastipur	14.56	21.92	3.56	8.10	0.11	0.02	0.34	0.37	2.05	7.79
18.	Darbhanga	13.73	17.89	3.33	7.31	0.45	0.05	0.29	0.30	2.27	9.92
19.	Madhubani	14.40	17.92	4.21	6.48	0.43	0.46	0.29	2.88	7.64	
20.	Saharsa	15.07	24.45	3.15	7.63	0.22	0.32	0.66	0.66	1.82	7.49
21.	Purnia	11.54	18.88	2.35	6.32	0.54	0.16	0.50	0.35	1.70	6.12
22	Katihar	12.58	21.10	2.48	6.72	0.41	0.34	0.55	0.25	1.68	4.80
23.	Munger	14.66	22.93	2.95	5.91	0.05	0.13	0.48	0.35	1.86	4.46
24.	Bhagalpur	14.25	20.96	3.08	6.95	0.15	0.33	0.48	0.41	1.84	6.71
25.	Santhal Pargana	11.09	20.66	1.84	7.10	0.24	0.02	0.32	0.42	1.14	5.28
26.	Dhanbad	14.25	21.01	2.89	6.45	0.01	0.03	0.45	0.92	1.84	7.74
27.	Giridih	11.33	19.11	1.81	5.80	0.06	0.04	0.35	0.43	1.19	5.15
28.	Hazaribagh	12.13	20.02	2.48	5.43	0.05	0.15	0.44	0.46	1.64	5.49
29.	Palmau	12.16	21.53	1.81	7.34	0.02	0.02	0.42	0.19	1.35	6.04
30.	Ranchi	12.25	20.34	1.72	7.32	0.01	0.06	0.52	1.20	1.31	9.67
31.	Singhbhum	12.69	23.02	2.32	7.16	0.01	0.04	0.47	0.72	1.48	6.91

is important to appoint female teachers in schools. In 1987-88 there were 4 lakh female teachers compared to nearly 12 lakh male teachers in primary/junior basic schools.

4. In order to increase retention, attention should be paid to transport facilities to and from schools. Cheap and reliable transport would greatly help children especially those in remote areas. Hence transport should also be treated as an amenity which is as important, as say blackboards, for schools.
5. The comparison of the two urbanised states, Maharashtra and Tamil Nadu with two states with a low level of urbanisation, Orissa and Bihar, shows that the less urbanised states have a lower literacy level. However, inter-district variations are found in all the states. In Maharashtra it is the Marathwada region which is backward; in Tamil Nadu which has only seventeen districts the variations are not so pronounced but Madras and Coimbatore districts are educationally better off than the others; in Orissa the southern districts of Koraput and Kalahandi are extremely backward. While in Bihar the northern districts especially those bordering Nepal need considerably more attention.
6. There are therefore two sets of regions which need attention: (i) States which are generally educationally backward and (ii) Districts within developed states where educational services need to be expanded.
7. Within this general framework of backward states and backward districts in developed states, certain smaller areal units need particular attention. In rural areas these include hilly regions, often populated by tribals, and areas where scheduled castes and scheduled tribes are in the majority. In urban areas it is the slums and low income colonies where school facilities need to be improved.
8. As far as various levels of education are concerned it needs to be stressed that it is the primary stage which needs attention and funds on a larger scale. It has been observed that subsidising higher levels of education leads to greater disparities. The relatively higher income groups tend to corner the higher education facilities resulting in greater concentration of economic power. At this stage of India's development it is therefore necessary to ascertain that qualitatively acceptable primary school facilities are available to all citizens. This is not to say that higher education facilities should be ignored but that they should not be heavily subsidised at the

expense of primary schools.

NOTES

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THIRTEEN

Tribal Education: Planning Interventions in the Context of Regional Disparities

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Educaton is a socially felt need and cannot be considered in isolation of the state of the society; its mode of production and the level of technological development it has attained. It is the collective heritage of the social group which is the basic criterion that makes a certain framework of education relevant, desirable and necessary. The problem of educability of the segment of Indian population categorised as scheduled tribes should, therefore, be seen in the context of the stage of their social evolution. It is in this context which is central to all programmes for their education as it dretermines their receptivity and induces them or distracts them from the ambit of stated goals. At their present level of development, the Indian tribes may belong to any of the following broad categories identified to illustrate the point:

i) tribal food gatherers with the predominantly nomadic or transhumant orientation and a communitarian ownership of land and its resources;
ii) transhumant peasants with the tendency towards private ownership of land still in its infancy;
iii) sedantarised peasants who have parcelled out their communally owned land into small, privately owned holdings;
iv) depeasantised rural proletariat who have lost their land to enterprising, immigrant non-tribal peasants and who have been reduced to wage earners;
v) depeasantised rural proletariat who have been ousted from their lands and herded out as contractual labourers to mining construc-

tion or plantation sites;

vi) depeasantised proletariat who have been ousted from their traditional lands and marginally absorbed into the tertiary sector of the urban economies;

vii) rural tribal elites with landed property;

viii) rural tribal elites having a feudal base and educational attainments which have equipped them to assume roles in political institutions at the local levels;

ix) rural tribal elites with landed property and educational attainments who have acquired political roles at the regional and national levels;

x) rural tribal elites with educational attainments who have been assimilated into educational, civil or military services.

The problems of educability, social context and the meaning of education will change as their position in this social hierarchy changes. There cannot be a single framework of state policy towards tribal education in a situation which is socially disparate and so diverse with respect to habitat, ecology, economic formation and social organisation.

The second argument is that the Indian state has perceived the tribal reality in its two major variants based on geographical as well as politico-historical realities.

i) tribes in the border areas, who are unimportant in terms of population size and consist of distinct, often militant ethnics whose territories in the sensitive border areas of the north-east have been given the status of statehood;

ii) tribes in mid-India and the hilly north-west or south who are a substantive majority but their ethnic identity lies divided within the broad framework of political (linguistic) states.

This dualistic approach to tribal question of territoriality has resulted in two policy frameworks: first, in tribal states where the tribal masses are direct beneficiaries from a policy sensitive to tribal problems of educability; and secondly in mid-India where administration has not been sensitivised to tribal needs and the political economy of education is based on hegemonistic relations with the tribes. In fact, each tribal group is divided among multiple identities thrust on them by their geographical location.

Thirdly, state policy on tribal education has been moulded in a colonial cast. Since the majority of the Indian tribes live in a state of underdevelopment and remain outside the ambit of the process of democratisation, their affairs, including educational affairs, are handled by non-tribal outgroups. The feedback from the administrative ranks fails to report faithfully the tribal positions as the tribal interests remain largely unserved by these ranks.

Fourthly, state policy on tribal education is antithetical to tribal development. Since Indian education tends to promote elitism and undermines the Indian cultural values it serves the interests of the tribal elites only and alienates the educated among them from their own masses. The benefits of education are, therefore, impounded by a handful of elites only. These conditions are definitely antithetical to the very idea of development.

Background

The contemporary trends in the spread of education in India should be seen in the context of historical development. While indigenous tradition of imparting education is very old, the Indian society was exposed to the modern educational system during the colonial rule only. The colonial development on the port nodes, coupled with the Christian influences in the coastal and the tribal areas of the country, contributed significantly towards the emergence of disparities in educational development. Education acquired an essentially urban character. On the other hand, vast regions within the hinterland of port centres remained unaffected by the spread of modern education.

There were, however, historically determined constraints on the universal spread of literacy and of education in Indian society even before independence. The spread of literacy stemmed from the primary edifice of social stratification enshrined in caste. The social system of caste gave birth to the philosophy of segregation and was so deterministic that it inforced an individual to subordinate his individuality to it.[1] The institutionalised framework of social inequality in conjunction with variations in income distribution engendered vast disparities not only in access to the institutions of formal learning but also in the levels of educational attainments of the different segments of the Indian people. As noted by Cipploa, while 'the art of writing spread around the world across geographical and cultural borders and adopted itself to a variety of languages, it hardly filtered down through social stratification'.[2]

India at independence carried on her shoulders a colossal burden of the heritage of inequalities in all facets of social development, education being no exception. However, a good deal of progress has been made in this field since independence. Efforts have been made to induce the lagging sections of population to formal education on a special basis. However, the problem of educability of scheduled tribes is a complex one. The nature of the problem is so different that it cannot be compared with the general population or even with the scheduled caste segment. Perhaps it may be hypothesised that education is not only an instrument of social change, its very acceptability is caused by the state of the society. By and large, the spread of education among the tribal communities depends, among other things, on their capacity to receive it,[3] their stage of social evolution, ecological setting, mode of economy and their exposure to a language other than their own dialect. The process of economic development and the pattern of interaction with the non-tribal groups in the neighbourhood of the areas of tribal concentration lead to the socio-cultural transformation of the tribes. In this connection the role of the tribal elites cannot be ignored as their attitudes tend to operate as a constraint on the universal distribution of gains of educational development in the tribal society.

The Indian tribes have been exposed to education only recently.[4] By and large, their response to programmes of education has varied significantly between tribes and from region to region. These responses depend on their socio-cultural, economic and demographic characteristics and on the magnitude and direction of the forces of modernisation, such as urbanisation and industrialisation.[5] The influence of Christianity in some tribal areas has also played a significant role.[6] The initiatives taken by the government and other quasi-government or voluntary organisations with the objective of educating tribes through programmes of special education and literacy drives have also contributed significantly towards the modernisation of tribal communities. However, these forces have not operated with equal vigour in all the tribal areas of the country, thus giving rise to significant variations in the regional pattern of education in the past few decades.

A study of spatial pattern of tribal literacy in India revealed not only glaring disparities in its regional spread, but inter-group inequities were found to be of different magnitude. This study has noted that the question of educability of the tribes is essentially linked with the state of their economy and therefore, any intervention in the former situation oblivious of the latter may prove to be of little significance.[7] Yet, another study for the Madhya Pradesh has revealed that whatever changes have taken place in literacy scenario are not the result of any development stimuli but are attributed to shift of tribal population itself.[8] A similar study for the state of Maharashtra found that the tribal rural female deserves the priority in improving the state of art of education in its totality.[9]

This paper is an attempt to analyse the regional disparities in the total spectrum of educational development and analyse the implications of tribal settlement pattern for providing educational facilities. It presents a framework for reducing regional disparities, in educational development of the tribes in the context of tribal ecological setting.

Roots of Deprivation

The educational deprivation of the tribal population is not a function of educational endeavour but stems from the distribution of tribal population. The origins of this deprivation need to be traced in the context of the renewed concern for the upliftment of the lot of the deprived and the under-privileged in contemporary India.

For ages the tribal communities of India have lived in the relatively isolated pockets, or *culs-de-sac,* away from the fertile river-valleys, and outside the framework of the peasant formations. The geographic patterning of the tribal communities as observed on a map of India offers clues to the distribution process of social categories within the Indian space. The tribes are concentrated in a mid-Indian belt which girdles the entire expanse of the country from the west coast in Gujarat and Maharashtra to the east coast in Orissa and the Rajmahal hills on the southern bank of the Ganga in Bihar-Bengal. The central Indian Vindhyan complex, which is characterised by its rugged and uneven topography, where the plateau follows the plateau and the hills follow the hills, has offered shelter to those primeval culture groups, distinctly pre-agrarian in their social and geographical isolation and survived the upheavals that unfolded the successive acts of the drama of social change among the peasant communities within the river valleys of the north and the south. Kosambi noted it as an expression of the survival of the past.

A second major concentration of the tribes is seen on the north-eastern periphery of India. Nestled within the complex of the sub-Himalayan ranges, the Indo-Burmese hills of Nagaland, Manipur, and Mizoram and the erosion surfaces of the Meghalayan plateau, the tribes of north-east India have a world of their own. Having lived in the marchland between India and China and in the triangle where the Indian and the Chinese worlds meet, they have picked up the impression that they belong to none.

The boundaries of the British Empire, as they were defined in the north-east left the tribal question as an irrelevant adjunct of the territorial question.

Spatial Context

It has been noted that 30 per cent of the total tribal population of India lives in only 15 districts in Mid-India (Fig.1). These districts and their agricultural resource base are presented in Table 1.

Table 1 Selected tribal districts and their land resources

Sl. No.	District	% Tribal population	Concentration index	% NSA	%GIA
1.	Ranchi	56.41	3.35	40.76	6.17
2.	Koraput	55.22	2.65	30.72	4.50
3.	Santhal Parganas	36.79	2.64	40.18	9.06
4.	Singhbhum	44.08	2.44	30.02	5.14
5.	Bastar	67.79	2.41	19.06	1.18
6.	Surat	41.64	2.01	51.87	26.44
7.	Panchmahals	41.76	1.87	53.74	6.12
8.	Valsad	54.59	1.87	57.72	14.86
9.	Mayurbhanj	57.67	1.76	36.25	9.85
10.	Surguja	54.81	1.73	24.78	2.20
11.	Dhule	40.53	1.60	48.69	10.23
12.	Udaipur	34.33	1.56	17.43	34.34
13.	Thana	21.76	1.41	28.16	2.35
14.	Khargone	43.25	1.36	38.79	7.25
15.	Nasik	23.45	1.35	58.64	13.70

Constrained by a rigorous environment which has fostered physical/social isolation for ages, the tribal communities have been by and large, brought under the influence of exogenetic forces only marginally. Thus, over time the tribal communities seem to have developed a mode of living generically linked to the ecological conditions in the enclaves which have provided them with a resource-base and have favoured the survival of their way of life with marginal modifications. It is in these enclaves that the tribes have shown a strong tendency of clustering and concentration. While areas close to the traditional homelands of these communities have undergone rapid change from the early stages of food

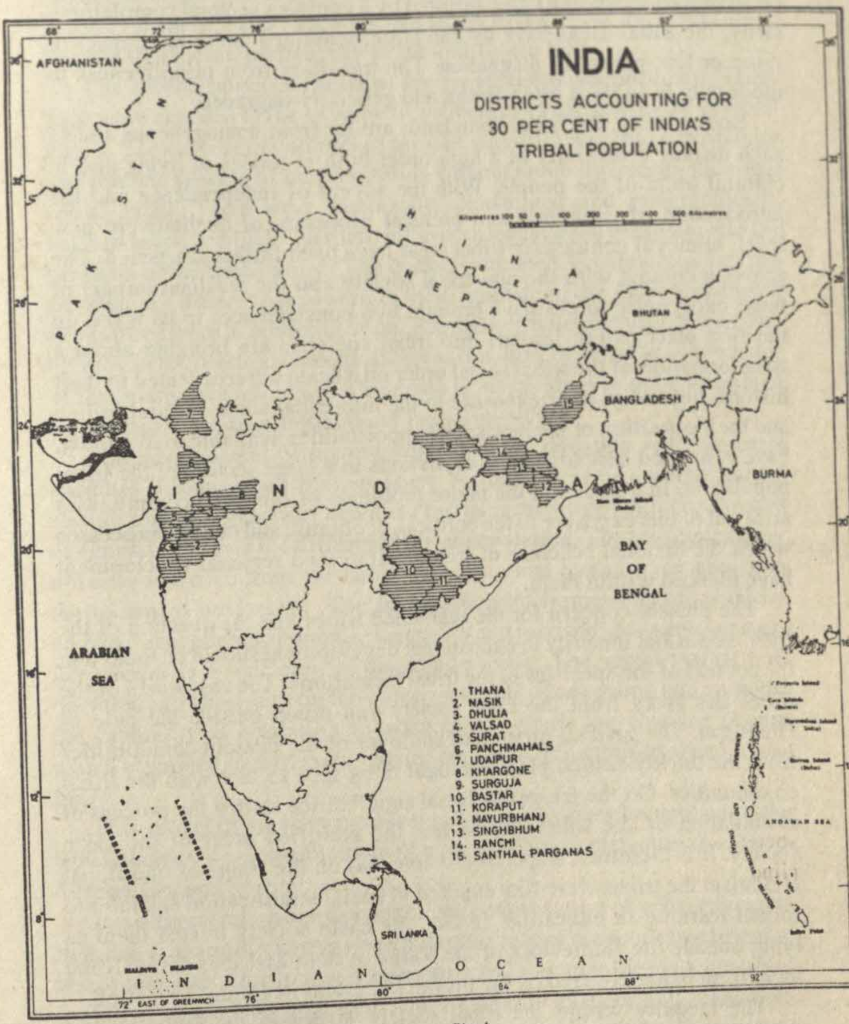

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Fig. 1

gathering and subsistence farming to the modern production system based on advanced technology and nurtured by a complex sectoral complementarity, the tribal areas have by and large, remained under the impact of more or less perpetual stagnation. The transition from primitiveness to modernity in India is often abrupt and generally ungraded.

Ecologically, the tribal homelands are far from homogeneous and as such display a diversity of a high order both in modes of living and in cultural traits of the people. With the advent of Independence and the introduction of economic and political processes of qualitatively new level, primeval contrasts in tribal areas have been further sharpened. The growing contact with the non-tribal society and the resultant impact of these exogenetic forces have brought two consequences in its wake. In the first place, these inroads into tribal societies are bringing about a transformation of the tribal social order on a scale unprecedented in their history. Secondly, their exposure to the non-tribal socio-cultural milieu and their cognition of the new social opportunities available in free India, have generated new urges and aspirations in a large section of the tribal population. In a nutshell, the major problems of the tribal communities arise out of this exposure to the political, economic and cultural processes which the national schemes of tribal welfare and regional development have induced within them.

The present concern for the scheduled tribes and the question of the tribal non-tribal inequity in educational development should be looked in the context of the specifics of the tribal formations. The vast world of the tribes lies away from the caste society and much outside the pale of Hinduism. The gradual process of spillover of the peasant communities from the thickly settled plains brought them face to face with the tribal communities. On the fringe of crucial significance started the process of assimilation of the tribal groups into the stratified order of the caste society. It is therefore, important to note that on the fringe of traditional Hinduism the tribes were first exposed to social stratification and later to formal learning or education. In fact, the caste society treated them as lying outside the framework of the Varna system and thus disqualified them from being covered by the prevalent system of formal education.

The inequity within the tribal society is not in the situation but introduced from outside. Historically, tribal societies have not nurtured inequity in the name of sex, age, status, social background or material well-being. The tribes have lived away from caste societies for so long that they could not contact social stratification based on caste hierarchy. The tribal tradition of work has rarely distinguished between male and female components of population. The women were as vitally linked with the social organisation of the tribes as the men. And yet the male-female inequity in literacy and education among the tribes in contemporary India is quite significant, particularly in the mid-Indian belt.

The second subset of the tribal society is seen in the northeast. There they were exposed to the exogenetic influences of the European colonial origin. The process of colonial expansion initiated them into Christianity and into the process of modernisation without much distrubing the tribal social order. There were historically determined and geographically defined limits in which Christian influences managed to percolate into the vastness of the tribal world. The contact with the Christian missionaries resulted in a differential pattern in the magnitude of the Christian impact as a motive force to modernisation. The male-female inequity in the tribal literacy in the northeast, insignificant as it is, may be cited as an evidence of the missionary influence. Their path to education was not constrained by the ingrained discrimination of the social order.

The development of underdevelopment in education with the caste societies belongs to a different genre. Among the caste societies social stratification has generally acted as a barrier in the way of universal spread of education among the different state of population. The low castes were not only alienated from the institutions of formal learning but also from the means of production. The institutionalised framework of social inequality engendered economic inequality and retained the landless working classes as a specimen of disguised slavery. The social system thus operated as a constraint on the universal spread of education and curtailed the capability of education to make an impact on the working classes which remained by and large outside the ambit of institutionalised learning.

This model of socially evolved deprivation cannot be applied to the tribal society. Their problems will have to be appreciated in an entirely different logical frame.

It is of great relevance to evaluate the spatial aspect of tribal education in India. Perhaps it is in this context that the role of the processes bringing about social transformation among the tribal communities can be meaningfully studied. Using the geographer's tools of analysis and evaluation, the present study puts forth the tribal problem in its proper spatial perspective.

Educational Levels

The tribal territories over a period of time have responded differently to the stimuli of change because the process of social and economic transformation has acquired different shape in the context of tribal ecology. In order to see the impact of these changes, it was considered pertinent to analyse the levels of education among tribal population. This analysis, however, is confined to selected 15 districts which account for 30 percent of country's tribal population. The analysis pertains only to the rural areas in order to keep aside the urban influences which may not be realistic of tribal characteristics. Moreover, the tribes are not an urban phenomenon generally.

A. Tribal Males. The very high rate of illiteracy ranging from 63.66 per cent in Vulsar of Gujarat to 89.75 per cent in Khargone (West Nimar) indicates that this segment of population continues to be away from the mainstream of educational development (Table 2). This becomes obvious when the corresponding rates of general population are compared. It is interesting to note that districts of Khargone, Koraput and Udaipur have roughly same illiteracy rate. The case of Udaipur is significant here. With a lesser degree of social isolation as well as comparatively low concentration of tribal population, this district could have shown some sign of progress. One possible reason for this may be the poor state of economy in view of negligible land resources on the one hand and lack of other natural resources on the other which do not facilitate change. It may be noted here that among the districts selected Udaipur has the least share of Net Sown Area (17.43 per cent). This argument gets strengthened when the case of Vulsar is taken into account. With 57.72 per cent Net Sown Area the district has the lowest illiteracy rate among the sample districts.

At the primary level of education the share is considerably low. The high percentage is noted again in Valsad district but the lowest is in case of Koraput (1.75 per cent). This raises a significant question vis-a-vis policy considerations. With all-round efforts to provide schooling facilities and various incentives, this gap in the performance of districts indicates that a policy of provision of incentives will not improve the situation much. It may be seen that Koraput, Khargone and Bastar show the least share of population educated upto primary level. With a high degree of isolation and large share of tribal population, probably education finds it difficult to penetrate these tribal areas. The accessibility situation in these districts, however, reveals that a significant chunk of population in these districts remain outside the reach of schools. Population distribution coupled with settlement pattern do not allow these areas to come to terms with official norms of providing school. Whether children in these areas have a right to education is the question planners will have to answer sooner or later.

The scenario undergoes a significant change after the primary level. The highest share of population educated upto primary level is in Ranchi followed by Singhbhum and Mayurbhanj. Koraput and Khargone, however, continue to be at the lower end. This pattern is generally maintained at matriculation and higher secondary levels; Ranchi has the highest proportion of population educated upto graduation-and-above level, followed by Surat and Singhbhum.

B. Tribal Females. Tribal females present an abysmal level of underdevelopment with as much as 99.39 per cent of illiteracy in Udaipur and 82.04 per cent in Valsad. Only 3.29 per cent females are educated upto primary level in Ranchi as compared to 0.18 per cent in Udaipur. Beyond primary level there is hardly any district worth mentioning (Table 3).

It may be concluded that education over a period of time has not made significant dents in tribal territories which is evident from the low proportion of the educated population at various levels. One may argue that if seen in the context of the situation which the country inherited at the time of independence, the achievement is not so bad. But can one really accept this argument when promises have been made so often in the last forty years but no results have been produced.

Realities at the Grass-roots Level

In order to examine the grass-root level realities, predominantly tribal villages in Sarada Tehsil of Udaipur district were selected. This analysis has three components. First, literacy rates for male and female population have been studied. Second, location of schools has been examined and third settlement pattern in a part of tehsil has been pursued in order to derive implications for providing educational facilities.

However, to begin with it may be significant to see the pattern of tribal population in villages of Sarada Tehsil (Table 4).

It may be seen from these tables that literacy rates in villages with more than 50 per cent tribal population are significantly low. The fact that these villages are not exclusively tribal and tribal literacy rates are lower than those for non-tribal population, performance of tribal population in these villages, is bound to be worse than what is seen. The fact that in more than 50 per cent of these villages the male literacy rates are less than 20 per cent indicates the state of art.

Table 2 Educational levels of tribal males—1981

State	% male population in different educational levels									
	Illiterate	Literate without educational level		Primary	Middle	Matric	Higher sec	Non-tech diploma	Technical diploma	Graduate (above)
		Non-formal	Formal							
Bihar	75.37	0.55	8.32	6.57	5.58	3	0.34	0	0.08	0.19
Ranchi	69.48	0.47	9.2	8.01	7.67	4.21	0.49	0	0.15	0.32
Santhal Parganas	78.9	0.54	8.59	5.2	4.17	2.21	0.23	0	0.05	0.11
Singhbhum	72.46	0.54	7.9	8.02	6.7	3.68	0.41	0	0.08	0.2
Gujarat	70.47	0.18	17.51	7.19	2.19	2.01	0.24	0.01	0.02	0.17
Surat	68.42	0.2	18.71	7.92	2.07	2.16	0.25	0.01	0.02	0.23
Panchmahals	77.7	0.12	12.07	6.67	2.13	1.93	0.25	0.01	0.01	0.14
Valsad	63.66	0.19	21.07	9.09	2.61	2.68	0.39	0.01	0.04	0.07

Madhya Pradesh	83.09	0.43	9.58	4.59	1.49	0.44	0.28	0	0.01	0.09
Bastar	87.94	0.29	6.86	3.04	1.1	0.47	0.21	0	0.01	0.09
Surguja	84.59	0.29	7.69	4.58	2	0.3	0.51	0	0.01	0.11
Khargone	89.75	0.29	6.21	2.76	0.66	0.02	0.25	0	0	0.06
Maharashtra	70.82	0.78	13.07	9.5	4.02	1.38	0.2	0.01	0.09	0.13
Nasik	76.01	0.66	10.73	8.07	3.21	1.06	0.11	0	0.1	0.05
Thana	79	0.68	10.87	6.18	2.23	0.84	0.08	0	0.05	0.06
Dhule	77.12	0.55	11.09	7.41	2.52	0.99	0.11	0.01	0.14	0.06
Rajasthan	82.12	0.63	8.58	5.34	2.17	0.61	0.39	0	0	0.15
Udaipur	89.19	0.34	5.8	3.31	0.97	0.22	0.12	0	0	0.04
Orissa	77.37	1.23	12.82	4.28	3.62	0.47	0.07	0	0.08	0
Koraput	89.23	1.1	7.16	1.75	0.66	0.07	0.01	0	0.01	0.01
Mayurbhanj	76.27	0.74	11.47	5.29	5.77	0.8	0.14	0.01	0.1	0.08

Table 3 Educational levels of tribal females—1981

State	Illiterate	% female population in different educational levels								
		Literate without educationallevel		Primary	Middle	Matric	Higher sec	Non-tech diploma	Technical diploma	Graduate (above)
		Non-formal	Formal							
Bihar	93.52	0.12	2.58	1.71	1.45	0.52	0.04	0	0.03	0.03
Ranchi	88.15	0.16	4.06	3.29	3.06	1.08	0.08	0	0.06	0.05
Santhal Parganas	95.21	0.12	2.45	1.05	0.82	0.29	0.02	0	0.02	0.01
Singhbhum	94.72	0.11	2.14	1.53	1.12	0.39	0.03	0	0.02	0.02
Gujarat	89.00	0.07	7.19	2.28	0.72	0.63	0.06	0.02	0	0.04
Surat	85.16	0.1	9.23	3.15	1.05	1.11	0.1	0	0	0.1
Panchmahals	94.36	0.04	2.64	0.76	0.25	0.26	0.01	0	0	0.01
Valsad	82.04	0.08	10.69	4.4	1.47	1.09	0.13	0	0.01	0.08

Madhya Pradesh	96.81	0.07	2.03	0.82	0.19	0.05	0.03	0	0	0.01
Bastar	97.78	0.05	1.48	0.51	0.13	0.04	0.01	0	0	0
Surguja	97.41	0.05	1.44	0.76	0.23	0.04	0.05	0	0	0.02
Khargone	98.36	0.04	1.12	0.35	0.09	0	0.03	0	0	0.01
Maharashtra	90.66	0.24	5.17	2.73	0.98	0.1	0.02	0	0.01	0.01
Nasik	92.78	0.23	4.42	1.8	0.62	0.13	0.01	0	0.01	0
Thana	94.65	0.19	3.31	1.23	0.47	0.13	0.01	0	0.01	0
Dhule	93.82	0.14	3.77	1.56	0.53	0.14	0.01	0	0.02	0
Rajasthan	99.07	0.05	0.59	0.22	0.05	0.01	0.01	0	0	0
Udaipur	99.39	0.03	0.35	0.16	0.05	0.01	0.01	0	0	0.04
Orissa	96.66	0.16	2.77	0.81	0.55	0.05	0.01	0	0.01	0
Koraput	98.42	0.09	1.27	0.15	0.05	0.01	0	0	0	0
Mayurbhanj	95.69	0.55	2.45	0.97	0.71	0.04	0	0	0.01	0

Table 4 Distribution of tribal population in Sarada Tehsil

% of tribal population	No. of villages	% of villages
No. tribal population	10	6.37
0 -5	6	3.82
6 -15	10	6.37
16- 25	16	10.19
26- 35	14	8.92
36- 50	10	4.37
Above 51	91	57.96
	157	100

The pattern of literacy rates is presented in Tables 5 and 6 .

Table 5 Male literacy rates in predominantly tribal villages (Sarada Tehsil)

Literacy rate	No. of villages	% of villages
Above 50	1	1.10
40- 50	1	1.10
30- 40	10	10.99
20- 30	23	25.27
10- 20	27	29.67
1-10	16	17.58
Below 1	1	1.10
No. literates	2	2.20
Total	91	100

Table 6 Female literacy rates in predominantly tribal villages (Sarada Tehsil)

Literacy rate	No. of villages	% of villages
Above 50	3	3.30
8 - 10	2	2.20
6 - 8	5	5.49
4 - 6	2	2.20
2 - 4	11	12.08
1 - 2	8	8.79
Below 1	28	30.77
No literacy	33	36.26
Total	91	100

The case of female literacy is very significant. In as many as 33 villages not a single female is literate. Similarly, in 28 villages literacy rates are less than 1 per cent. This shows the status of female under-development.

When the literacy rates are seen in conjunction with population size of the villages, it is noted that generally larger villages show higher literacy rates. Since in larger villages, the non-tribal population has a sizeable number, higher literacy rates are attributed to performance of non-tribal population.

Location of Schools

Out of 91 villages with more than 50 per cent tribal population only 58 villages have primary schools, only 11 have middle schools, 5 have secondary schools and only 1 has higher secondary school (Fig. 2).

Planning for location of schools, however, has its own problem in the context of settlement pattern particularly in a tribal setting. The concept of revenue village has no meaning. Although, while providing schools settlement is taken into consideration, even then the problem remains because of the distribution of settlements which does not find a place in policy for providing schools. A study of Fig. 3 which shows the settlement pattern at the scale of 1:25000 helps to draw some generalisation. It is noted that the settlement Thori Chhaparwali has there groups of settlements. The Census record shows that there is only one primary school in this revenue village. Although, it is not possible to ascertain in which settlement group the school is located, distance between these groups of settlement suggest that children in all settlements cannot avail schooling facility. Similar pattern may be noted in case of other settlements too.

This raises a significant question of planning mechanism. Can one ignore the settlement pattern while providing schooling facilities? If the nation is really committed for improving education among deprived, particularly those living in sparsely populated areas, then the policy and planning mechanism will have to come to terms with the reality of settlement pattern.

Conclusions

Following from the above, an integrated policy framework may be recommended as given below:

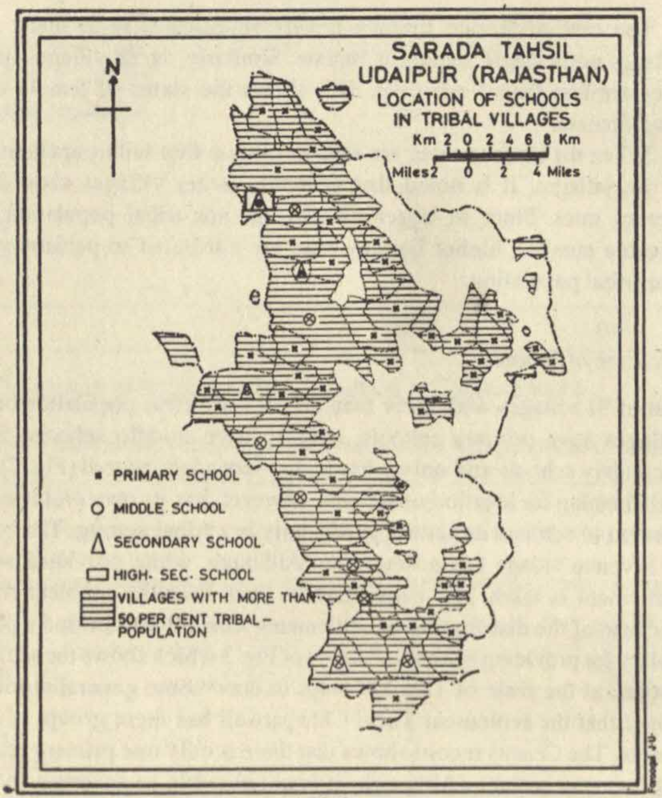


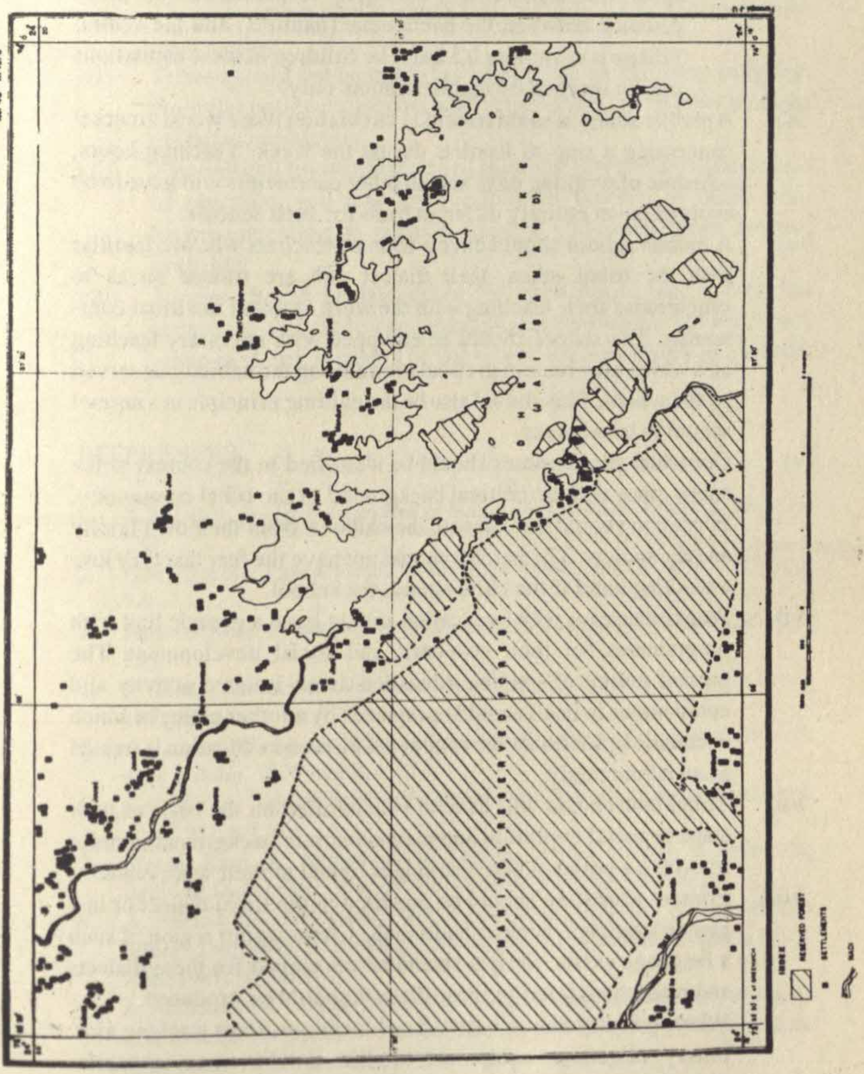
FIG. 2

16

i) More research is needed to establish the ground truth regarding the tribal settlement system, spacing of tribal habitations and the existing location of schools. This research should be undertaken at the initiation of the central agencies like the UGC and ICSSR on a priority basis.

ii) Pilot projects may be launched in the 15 districts, which in themselves account for about one-third of the tribal population with a view to generating information on the social and socio-ecological positions of the tribes, their economic exchanges and their specific schooling needs.

   (a) In case the tribes are nomadic or semi-nomadic such as Gujjar Bakarwals, Guddis, etc. mobile schools should be created to cater to their needs.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(b) A fixed location for a school may not be feasible even for the tribal habitations if they are highly dispersed and the mean distance between the habitations (hamlets) and the central village is more than 0.5 km. The children in these habitations can be reached by mobile schools only.

iii) A mobile school should remain in circulation like a weekly market concerning a ring of hamlets during the week. Teaching hours, schedule of working days and all other parameters will have to be evolved on an entirely different basis for such schools.

iv) A mobile school should have a team of teachers who are familiar with the tribal ethos, their dialect and are trained so as to synchronise their teaching with the work ethos of the tribal community. The school should be equipped with necessary teaching aids which may remain in circulation among the habitations served by the school. This should also be the guiding principle in a normal school in tribal areas.

v) Curricular programmes should be identified in the context of the social ethos and the cultural background of the tribal community. Education should not alienate the children from their own family and the society. The parents should not have the fear that they lose a working hand if the child attends the school.

vi) Programmes for tribal education should have a generic link with programmes for their economic and social development. The present policy of treating education as an isolated activity and autonomous in itself should be replaced by another policy in which economic uplift holds the central position and education is treated as an adjunct only.

vii) Tribal households will have to be identified on the basis of their stage in social evolution and their economic background in order to evolve a policy where learning is linked to their work ethos.

viii) Primary education should be imparted in the tribal dialect or in a pigeon language, such as Sadri in the Chotanagpur region, if such a language exists. Scripts should be developed for these dialects and reading material in those dialects should be produced.

ix) Where primary schools have fixed locations, their teaching aids, library collections, equipment, teachers should remain in circulation so as to cater to the needs of a larger community of students.

x) A council for tribal education for each selected district should monitor the proposed plan of work besides regulating the circulation assets of mobile schools. These councils should involve the tribal panchayats in the transactions of their responsibility at all the stages of policy formulation, implementation and monitoring.

xi) The programme may be extended to all tribal areas if its results are encouraging.

xii) Tribes should not be treated as unique and an exclusive category. A similar policy framework will be necessary for all other sections of Indian population.

xiii) This will call for restructuring of planning mechanisms at all levels of education and may involve massive transfer of funds from higher education to primary level if additional funds are not available.

xiv) Targets should be laid down for each region and sub-region separately and there cannot be anything uniform for state or a group of states. It cannot be conceived for the country as a whole.

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FOURTEEN

Imbalances in Education and Rehabilitation of Disabled: The National Scenario

N.K. Jangira and Sudesh Mukhopadhyay

The Context

Whatever be the reasons, imbalances are a rule rather than an exception in almost all development sectors. In education too imbalances are conspicuous. In special education for disabled, which is a recent development, imbalances are more glaring. What is the nature of imbalances in this sector of education? What are the causes for this? How to correct imbalances in special education in immediate future? This paper is an attempt to seek answers to these questions. Since this is the first attempt in this direction, imbalances in general are probed in passing followed by substantive analysis of regional imbalances.

In the absence of adequate data base in special education for disabled, the task is not easy. Very limited data are available at the district level. The parameters on which data are available at district level, the analysis has been carried out at the district level. In other cases, the analysis has been carried out at the state level. The sources of data are NSSO survey of 1981, surveys conducted by National Institute for the Handicapped Rehabilitation Council, annual reports of the concerned ministries, and unpublished reports. The paper should be viewed in the context of limitations imposed by the non-availability of data in an organised way.

Analysis of the Present Situation

The parameters for the analysis are basically determined by the task analysis. In this case, it involves the infrastructural facilities for the prevention of disability, early detection, assessment and stimulation, identification and assessment of school age children, rehabilitation and restorative services (orthotic, prosthetic, medical); educational provision in special and general schools, vocational training and job placement, training of personnel and research and development. Alongwith these parameters some indicators related to these tasks are also to be covered. In this case, literacy level, poverty status of the states and infant mortality rates have been considered.

General Indicators and Prevalence of Disability

Table I provides an overview of general indicators and prevalence of disabilities. The states have been ranked on literacy level in general, female literacy level, population below poverty line, infant mortality rates and prevalence of locomotor, visual and speech and hearing disability. The prevalence rate of mental retardation and learning disability have not been yet surveyed.

For drawing inferences from the table literacy and female literacy rankings, it may be noted that rank 1 is indicative of highest rates which in certain cases is representative of better performance and in others such as poverty, mortality and disability of greater concern.

Several interesting trends emerge from examination of Table 1. Firstly, variation in the prevalence of one or more disabilities in rural and urban areas in different states and union territories is conspicuous. Secondly, literacy and female literacy which have been found to be associated with several other development indices, is not constantly related to prevalence of disabilities. For example, Kerala which has the highest ranking on literacy and female literacy and also the lower infant mortality rate, average population below poverty line also has comparatively lower rate of prevalence of disabilities in urban areas but above average prevalence in rural areas. Is this situation due to low infant mortality or is it due to better infrastructural facilities for prevention of disability? It needs a microscopic probe. In the case of the union territory of Pondicherry this trend is still more conspicuous. Even though higher ranking on literacy, concerns for poverty, mortality and disability are alarming. Thirdly, there are states like Manipur and Meghalaya which have low literacy ranking, above average population below poverty line and comparatively lower prevalence of disability? Is it due to climate and nutrition or lack of identification of disability? In Mizoram, however, the relationship seems more plausible except for locomotor disability. Fourthly, besides variation

Table 1 State rank profile of critical indicators and prevalence of diability

S. No.	Name of State/ Union Territory	Literacy	Female literacy	Pop. below poverty	Infant mortality*	At least one disability		Visual		Hearing		Locomotor	
						R	U	R	U	R	U	RU	U
1.	Andhra Pradesh	23	23	14	15	3	4	2	6	5	4	3	5
2.	Arunachal Pradesh	30	30	21	4	—	—	—	—	—	—	—	—
3.	Assam	—	—	8	—	25	23	25	20	22	14	26	24
4.	Bihar	28	28	4	13	12	12	12	18	16	12	8	9
5.	Gujarat	11	13	15	7	20	15	14	16	23	18	16	13
6.	Haryana	19	20	20	13	7	2	10	4	7	3	5	2
7.	Himachal Pradesh	13	15	19	15	14	17	17	10	10	20	13	18
8.	Jammu and Kashmir	26	25	16	20	13	21	22	21	12	19	7	19
9.	Karnataka	18	19	10	18	9	12	3	11	11	9	12	11
10.	Kerala	1	1	13	29	16	5	20	14	18	8	9	26
11.	Madhya Pradesh	24	26	3	2	21	6	13	12	25	21	19	14
12.	Maharashtra	9	10	12	5	15	14	11	13	19	17	15	15
13.	Manipur	15	18	18	30	26	25	24	25	24	23	25	20
14.	Meghalaya	21	17	11	19	22	24	21	22	9	24	24	25
15.	Mizoram	4	3	4	24	19	22	23	24	2	5	22	23
16.	Nagaland	12	11	21	25	—	26	—	26	—	—	—	26
17.	Orissa	20	22	1	1	4	11	3	3	3	26	17	16
18.	Punjab	17	12	22	21	2	6	4	9	13	11	1	4

17. Orissa	20	22	1	1	4	11	3	3	3	26	17	16
18. Punjab	17	12	22	21	2	6	4	9	13	11	1	4
19. Rajasthan	29	29	17	8	6	7	6	8	15	10	4	3
20. Sikkim	22	9	—	10	—	—	—	—	—	—	—	—
21. Tamil Nadu	10	14	7	17	5	3	9	2	4	7	10	8
22. Tripura	14	27	2	9	9	8	8	6	14	2	18	12
23. Uttar Pradesh	25	16	9	3	8	10	5	4	17	6	14	10
30. West Bengal	16	8	5	12	17	19	18	17	8	16	20	22
25. Andaman and Nicobar	8	30	21	23	—	—	—	—	—	—	—	—
26. Chandigarh	2	2	21	28	23	19	26	223	6	15	21	1
27. Dadra Nagar Haveli	27	24	21	11	24	—	19	—	21	13	23	—
28. Delhi	3	4	21	26	11	20	16	20	22	11	21	—
29. Goa	5	5	21	27	18	19	15	10	26	25	6	17
30. Daman and Diu	—	7	—	-	—	—	—	—	—	—	—	—
31. Lakshadweep	7	6	21	6	—	—	—	—	—	—	—	—
32. Pondicherry	6	6	21	22	1	1	1	1	1	1	2	7

Source: 1. Critical Indicators from S.C. Nuna, *Education and Development*, NIEPA, New Delhi, 1987.

2. Prevalence of Disability from NSSO, *A Summary of the Report on Survey of Disabled Persons*, MSW, 1981

3. S.C. Nuna, *Women and Development*, NIEPA, 1990.

in the prevalence of disability, the variation in prevalence among disabilities is marked. For example, Mizoram has high prevalence of hearing disability and much lower prevalence of locomotor and visual disability. Is it due to the available infrastructural facilities for the prevention of certain disabilities or is the region more prone to certain disabilities?

Comparatively states in northern region, e.g. Haryana, Himachal Pradesh, Jammu and Kashmir, Punjab and Rajasthan, the critical indicators point to comfortable position on literacy, low infant mortality rate and lower rate of poverty, yet prevalence of disability is quite significant for all disabilities in rural and urban areas with Punjab, Rajasthan, Haryaya, Jammu and Kashmir and Himachal Pradesh being ranked from high to low rate.

The lack of pattern and consistency in relationships among general indicators and prevalence point to the need for further probing to explore possible causes and search for other indicators. For example, the data on density of population may also serve a meaningful indicator.

Prevention of Disabilities

The major disability prevention programme refers to Integrated Child Development Scheme (ICDS). These projects include immunisation of pregnant women and immunisation of children, supplementary nutrition and preschool education. Table 2 provides the number of districts in each state covered by ICDS projects per district and ranking of states.

This table needs examination in relation to Table 1. All districts seem to have been covered by the ICDS. The number of districts has increased since the census of 1981, but these districts have been carved out of those enlisted in the census. It may therefore be safe to assume that the newly carved districts might have ICDS projects. The highest number of ICDS projects per district is in the state of Goa followed by Haryana. But strangely enough the states with like Bihar, Orissa, Tripura which have higher population below poverty line do not have higher number of ICDS projects per district. It needs serious consideration. The higher ranking of states on ICDS projects is not necessarily related to rate of prevalence of disability. Is it that sampled blocks for the National Survey of Disability were not covered by ICDS at all or were these not covered for sufficiently long period before by the ICDS? If these blocks were covered by ICDS, has ICDS not made an impact on prevention of disability? These questions need further probing.

Table 2 State rank profile of prevention of disability

S. No.	Name of State/ Union Territory	Dist.with services	ICDS Centres	Ratio	Rank
1	Andhra Pradesh	23	99	4.30	11
2	Arunachal Pradesh	9	19	2.11	22
3	Assam	15	51	3.40	17
4	Bihar	39	142	3.64	13
5	Gujarat	18	98	5.44	7
6	Haryana	12	105	8.75	3
7	Himachal Pradesh	11	21	1.91	26
8	Jammu and Kashmir	15	46	3.07	19
9	Karnataka	21	94	4.48	9
10	Kerala	13	73	5.62	6
11	Madhya Pradesh	50	130	2.60	20
12	Maharashtra	30	105	3.50	16
13	Manipur	8	16	2.00	24
14	Meghalaya	0	—	—	—
15	Mizoram	3	16	5.33	8
16	Nagaland	7	18	2.57	21
17	Orissa	14	84	6.00	5
18	Punjab	7	23	3.29	18
19	Rajasthan	28	100	3.57	15
20	Sikkim	4	4	1.00	29
21	Tamil Nadu	17	65	3.82	12
22	Tripura	3	13	4.33	10
23	Uttar Pradesh	56	202	3.61	14
24	West Bengal	16	130	8.13	4
25	Andaman and Nicobar	2	4	2.00	25
26	Chandigarh	1	2	2.00	23
27	Dadra Nagar Haveli	1	1	1.00	30
28	Delhi	1	23	23.00	1
29	Goa	1	10	10.00	2
30	Daman and Diu	2	2	1.00	28
31	Lakshadweep	1	1	1.00	31
32	Pondicherry	3	5	1.67	27

Source: NIPCCID. "List of ICDS projects", 1987.

Identification and Assessment of Disabled Children

The identification and assessment has been mostly through referrals to the hospitals, special institutional services and NGOs. It had been on a limited scale. A few bold experimental projects are directed towards this end under the Ministry of Welfare, the District Rehabilitation Centre (DRC) scheme has developed infrastructural facilities in Bilaspur (Madhya Pradesh), Thane (Maharashtra), Bhubaneswar (Orissa), Vijaywada (Andhra Pradesh), Kota (Rajasthan), Chinglepat (Tamil Nadu), Sultanpur and Sitapur (Uttar Pradesh) and Kharagpur (West Bengal). The facilities for the assessment of mentally retarded children in the DRCs at present is conspicuously missing. The North Eastern states which otherwise have weak infrastructural facilities do not have even a single project. The assessment teams are also formed by the education departments in states implementing the centrally sponsored scheme of integrated education for disabled children. These states have been mentioned in Table 5 of this paper and total of 21 States and UTs against a total of 32. For identification and functional assessment teachers and the schools are being mobilised under the Unicef assisted project PIED being implemented in the states of Haryana, Madhya Pradesh, Maharashtra, Mizoram, Nagaland, Orissa, Rajasthan and Tamil Nadu. The assessment facilities also exist in the National Institute for Handicap and their regional centres.

Educational Provision —Special Schools

Tables 3 and 4 provide information regarding educational provision for disabled children in special schools. These tables provide state profiles based on the number of districts with special schools for one or more disabilities and respective ranking.

An examination of the tables reveal the following trends:

1. 412 districts out of 432 are covered by a special school for children with one or the other disability. It seems to be a fair coverage. Differentially, however there are marked gaps. For example, some states do not have even a single special school for children with a particular disability. It needs to be rationalised.
2. The largest number of districts have been covered in Uttar Pradesh. The data regarding the number of disabled children in such schools would provide meaningful indicator of the balance services. These are data however not available at present.
3. Maharashtra ranks highest on the provision of special school facilities of all disabilities followed by Tamil Nadu and Karnataka.
4. The trend is towards concentration of special schools in South West India. North and North East do not have sufficient special school facilities.

Table 3 State rank profile of educational provisions in special schools

S. No.	Name of State/ Union Territory	Dist. wise rating	Special schools	OH	VI	HI	MR	More than one disability
1	Andhra Pradesh	6	6	7	4	5	5	7
2	Arunachal Pradesh	18	0	0	0	0	0	0
3	Assam	14	14	0	14	15	12	0
4	Bihar	3	10	0	4	9	9	0
5	Gujarat	7	4	7	2	2	6	5
6	Haryana	12	15	3	16	17	14	0
7	Himachal Pradesh	12	19	0	21	17	14	0
8	Jammu and Kashmir	14	16	0	17	15	0	0
9	Karnataka	8	3	3	7	7	1	7
10	Kerala	12	5	3	9	13	4	2
11	Madhya Pradesh	2	9	0	10	11	9	1
12	Maharashtra	4	1	1	1	1	2	4
13	Manipur	17	19	0	19	0	14	0
14	Meghalaya	18	0	0	0	0	0	0
15	Mizoram	0	23	0	21	0	0	0
16	Nagaland	16	23	0	21	0	0	0
17	Orissa	11	13	0	12	14	7	6
18	Punjab	13	11	0	11	9	7	7
19	Rajasthan	5	12	7	14	8	12	7
20	Sikkim	20	0	0	0	0	0	0
21	Tamil Nadu	9	2	1	3	24	3	3
22	Tripura	21	19	0	19	17	0	0
23	Uttar Pradesh	1	7	0	4	4	8	7
24	West Bengal	16	8	3	8	6	8	7
25	Andaman and Nicobar	24	23	0	0	0	13	0
26	Chandigarh	24	18	0	21	17	9	0
27	Dadra Nagar Haveli	0	0	0	0	0	0	0
28	Delhi	24	10	3	12	11	7	7
29	Goa	24	10	0	0	17	0	0
30	Daman and Diu	13	0	0	0	0	0	0
31	Lakshadweep	24	0	0	0	0	0	0
32	Pondicherry	21	17	7	18	0	0	7

Source: Rehabilitation Council of India, "List of Special Schools" Ministry of Welfare, New Delhi, 1987.

Table 4 District profile of educational provision (number of special schools)

S. No.	Name of State/ Union Territory	OH	VI	HI	MR	Multiple	Total	Rank	Dist. with largest no.
1	Andhra Pradesh	1	24	14	21	1	61	6	Hydrabad, 28
2	Arunachal Pradesh	0	0	0	0	0	0	0	
3	Assam	0	8	2	2	0	12	15	
4	Bihar	0	24	7	3	0	34	10	
5	Gujarat	1	37	25	20	4	87	4	Ahmedabad, 18
6	Haryana	2	7	1	1	0	11	16	
7	Himachal Pradesh	0	1	1	1	0	3	20	
8	Jammu and Kashmir	0	5	2	0	0	7	17	
9	Karnataka	2	22	11	58	1	94	3	Bangalore, 54
10	Kerala	2	17	5	31	7	62	5	
11	Madhya Pradesh	0	14	6	3	13	36	9	
12	Maharashtra	6	48	62	57	5	178	1	Bombay, 82
13	Manipur	0	2	0	1	0	3	20	
14	Meghalaya	0	0	0	0	0	0	0	
15	Mizoram	0	1	0	0	0	1	24	
16	Nagaland	0	1	0	0	0	1	24	
17	Orissa	0	9	4	4	2	19	14	
18	Punjab	0	13	7	4	1	25	12	
19	Rajasthan	1	8	8	2	1	20	13	
20	Sikkim	0	0	0	0	0	0	0	
21	Tamil Nadu	6	28	24	33	6	97	2	Madras, 32
22	Tripura	0	2	1	0	0	3	20	
23	Uttar Pradesh	0	24	22	8	1	55	7	
24	West Bengal	2	21	13	8	1	45	8	Calcutta, 26
25	Andaman and Nicobar	0	0	0	1	0	1	24	
26	Chandigarh	0	1	1	3	0	5	18	
27	Dadra Nagar Haveli	0	0	0	0	0	0	0	
28	Delhi	3	9	6	15	1	34	10	Delhi, 34
29	Goa	0	1	1	1	0	3	20	
30	Daman and Diu	0	0	0	0	0	0	0	
31	Lakshadweep	0	0	0	0	0	0	0	
32	Pondicherry	1	3	0	0	1	5	18	
	Total	27	330	223	277	45	902		

Source: Rehabilitation Council of India, List of Special Schools, 1987.

5. The Union territories except Delhi do need special attention since such facilities are not available.

6. In terms of disability, visually handicapped has the largest number of special schools followed by mentally retarded and hearing impairment.
7. Maharashtra has the largest number of special schools, 178 out of which 82 (36 per cent) are located in Bombay alone. Tamil Nadu has 87 out of which 30 (34 per cent) are located in Madras and in Karnataka 54 (47 per cent) out of 94 are located in Bangalore. Same is the trend in Gujarat, Kerala, Andhra Pradesh and West Bengal. The facilities in rural areas are needed.
8. Examination of these tables alongwith Table 1 reveals that the rankings on prevalence of disability do not correlate with ranking on special school provision. The number of special schools is a gross indicator of the educational provision available for disabled children. The number of disabled children served by them would be a finer indicator. The data on this need to be collected.

Educational Provision —Integrated Education

In India, the first policy decision for Integrated Education of the Disabled was made in 1974 which received greater impetus in 1981 under International Year of the Disabled. It was shifted from Ministry of Social Welfare to Ministry of Education soon after. Table 5 reports the progress from 1984 onwards when, the scheme started operating on an experimental basis. The figures may not appear very important for a casual viewer but trend is important. It may also be noted that official figures on children studying in general schools with the support of NGO's or otherwise are not available. No survey on education has identified this group of children. Fifth survey report by NCERT is still awaited on this dimension. However, imbalances are being interpreted on the basis of available data.

Kerala which as such carries the credit for higher literacy rates also, is the leading state in terms of number of schools and number of children being covered under IEDC scheme. This state does not have a good ranking on ICDS but figures at rank 5 for special school provision.

Nagaland has been a late starter but has caught up fast and is at the second rank for school provision and 5 rank for number of children. This state does not have a good infrastructure for other services for disabled.

Gujarat has taken up the provision with support from NGOs.

Table 5 State profile of educational services (integrated education)

S. No.	Name of State/ Union Territory	No. of schools	Ranking	Students	Ranking
1	Andhra Pradesh	18	12	14	20
2	Arunachal Pradesh				
3	Assam				
4	Bihar	20	9	214	13
5	Gujarat	200	3	270	12
6	Haryana	9	16	na	
7	Himachal Pradesh	5	17	60	16
8	Jammu and Kashmir				
9	Karnataka	200	3	783*	5
10	Kerala	4500	1	12963	1
11	Madhya Pradesh	17	13	210*	14
12	Maharashtra	34	6	790	6
13	Manipur	1	18	38	17
14	Meghalaya				
15	Mizoram	20	9	386	8
16	Nagaland	292	2	173	15
17	Orissa	20	9	502	7
18	Punjab	16	15	1550*	3
19	Rajasthan	22	8	1980*	2
20	Sikkim	1	18	14	18
21	Tamil Nadu	na		1246*	4
22	Tripura				
23	Uttar Pradesh	17	13	322	10
24	West Bengal				
25	Andaman and Nicobar	30	7	365*	9
26	Chandigarh				
27	Dadra Nagar Haveli				
28	Delhi	36	5	310	11
29	Goa	1	18	18	19
30	Daman and Diu				
31	Lakshadweep				
32	Pondicherry				
	Total	5459		22208	

* Estimated Number

Source: Statement from Department of Education, MHRD, New Delhi, 1986 and 1988-89

Northern region as a whole maintains a lower profile with comparatively better provision in north-east sector and western zone managing an above average profile with Maharashtra and Gujarat in lead. South as a whole appears to be quite sensitive and offering the largest provision. Needless to say, district-wise data are not very satisfactory. With support from PIED a few rural districts have been encouraged to develop context specific modalities but more concentrated efforts are required.

Restorative and Rehabilitation Services

Disabled need support for vocational training and also job placements in this competitive world. These services are provided by the hospitals, artificial limb fitting centres, National Institutes for Handicap and also by special employment exchanges and vocational rehabilitation centres run by Ministry of Labour. Data in a consolidated form could be collected from the last category. They are presented in Tables 6 and 7.

These tables refer to persons enrolled for rehabilitation and job placements or self employment provided during a year — 1988 in this case. The following trends are discernable:

1. Highest rate of clients enrolled does not necessirly indicate higher rate of rehabilitation.
2. If rehabilitation is taken as the criterion then Kerala, Tamil Nadu, Uttar Pradesh, Punjab, West Bengal appear to be providing better services. But it also points out the disparity in the disability area itself, everywhere higher rate of rehabilitation has been caused by locomotor handicap which is easy to cater to. General public apathy is less and service is easy thanks to artificial limb centres but also to initial violation of criterion for deciding the degree of disability where OH got the better edge.
3. Next comes hearing handicapped, visually impaired and last is mildly mentally retared both in terms of enrolment as well as rehabilitation services.
4. No services have been initiated in the North East region except for Assam. Other UTs except Delhi also are not on the map for these services.

Study of special employment exchanges show the following indicators in terms of coverage across different States/UTs and districts.

Table 6 State rank profile of restorative and rehabilation services — I

S. No.	Name of State/ Union Territory	Location	Clients of rolls						Vocational rehabilitation Rehabilitated					
			VI	HI	OH	MMR	Total	Rank	VI	HI	OH	MMR	Total	Rank
1.	Andhra Pradesh	Hyderabad	124	126	1603	34	1887	4	37	71	495	15	618	2
2.	Assam	Guwahati	172	160	736	35	1103	12	20	41	172	3	236	13
3.	Gujarat	Ahmedabad	35	104	1075	30	1248	9	16	25	369	5	415	9
4.	Karnataka	Bangalore	91	87	852	10	1040	11	60	60	356	11	487	6
5.	Kerala	Trivandrum	110	257	914	17	1298	8	22	126	487	2	637	1
6.	Madhya Pradesh	Jabalpur	105	69	1716	8	1898	3	31	21	419	5	476	7
7.	Maharashtra	Bombay	188	121	1043	41	1393	6	112	73	210	7	402	10
8.	Orissa	Bhubaneswar	11	41	337	7	396	14	16	133	433	1	389	11
9.	Punjab	Ludhiana	44	1	2076	1	2152	2	11	4	546	0	561	14
10.	Rajasthan	Jaipur	44	18	938	2	1002	13	9	8	197	1	215	14
11.	Tamil Nadu	Madras	295	308	2561	59	3223	1	16	60	304	3	383	12
12.	Uttar Pradesh	Kanpur	164	61	1462	7	1694	5	38	23	504	6	571	3
13.	West Bengal	Calcutta	64	61	1059	9	1193	10	34	54	419	2	509	5
14.	Delhi	Delhi	142	158	976	25	1301	7n	71	41	337	3	452	8

Rehabilitation means placement and self-employment.
Source: Directorate of Special Exchanges, 1988.

Table 7 State profile of restorative and rehabilation services — II

S. No.	Name of State/ Union Territory	Location	Registrations					Special employment exchanges placements					Dist. with highest	
			VI	HI	OH	Total	Rank	VI	HI	OH	Total	Rank	Regist.	Placement
1.	Andhra Pradesh	1	96	80	376	552	9	11	16	32	59	9		
2.	Assam	1	na	na	na	na	na	na	na	na	na	na		
3.	Bihar	1	85	75	761	921	4	0	2	4	6	14	Patna 921	
4.	Gujarat	4	82	62	1063	1107	3	7	8	311	326	2	Ahmeda. 554	
5.	Himachal Pradesh	1	na	na	na	na	na	na	na	na	na	na		
6.	Karnataka	1	19	55	531	705	7	17	42	114	173	4		Bang. 173
7.	Kerala	1	20	47	302	369	11	1	5	148	154	6		Tri. 154
8.	Madhya Pradesh	1	37	28	249	314	13	1	2	17	20	13		
9.	Maharashtra	1	122	138	634	894	5	44	36	83	163	5	Bombay 89	Bom. 163
10.	Manipur	1	14	26	107	147	15	0	0	0	0	0		
11.	Orissa	1	38	15	263	316	12	6	9	30	45	10		
12.	Punjab	1	na	na	na	na	na	na	na	na	na	na		
13.	Rajasthan	1	11	14	514	539	10	2	7	96	105	7		
14.	Tamil Nadu	2	181	317	1678	2276	1	13	20	265	298	3	Mad. 1704	Mad. 270
15.	Tripura	1	5	15	143	163	14	0	0	40	40	12		
16.	Uttar Pradesh	1	41	46	750	837	6	7	11	25	43	11	Kan. 837	
17.	West Bengal	64	78	499	641	8	4	18	58	80	8			
18.	Chandigarh	1	na	na	na	na	na	na	na	na	na	na		
19.	Delhi	1	210	88	1057	1365	2	107	60	198	365	1	Del. 1365	Del. 365

Source: Directorate of Special Exchanges, 1988.

1. Gujarat has four special exchanges as compared to other States and UTs and Tamil Nadu has two.
2. Tamil Nadu also accounts for highest registration and third rank for placements.
3. Kerala also lags behind significantly for registration and placement which is noteworthy seeing to its better performance for educational services.
4. However, all services for restoration and rehabilitation are located in urban sectors mainly at capital towns.

Conclusion

Though tradition of education of the disabled in this country is more than a century old, the formal setup has only recently identified its role.

However a span of ten years active thinking in the field is the guiding star of hope. India as a whole has recognised the need. It is also a heartening trend that Education, Welfare, Health, Labour all are putting efforts together with full support to and from NGOs.

Union territories especially Pondicherry need more support and even a detailed study of the prevalence of disability and development of facility for initiating the services. Lakshadweep is totally absent from the scene — a case of good luck or ignorance one has to establish.

North and Northwest states need greater support from policy makers and implementors in respective states. Resources are not the problem.

Bihar and Orissa and to some extent West Bengal and Madhya Pradesh also are the weak points.

North-East has shown good progress but Arunachal Pradesh and Tripura need more support. But more than that it seems policy decision is involved. However, seeing to lower rate of prevalence concentrated efforts in the region as a whole may be better alternative in certain service areas.

South and West have been progressing fine. But magnitude calls for better district level and rural based inputs.

District-wise disparaties are glaring, absence of data itself is of concern showing the insensitivity of the system to the need.

Needless to say manpower would be required to oil the whole system. Efforts have just started in terms of specialised training, multi level training and training of longer and shorter duration. UGC has also come up with the scheme to finance a few special Education Departments in the university. The scenario will undergo a change for betterment in near future.

FIFTEEN

Regional Disparities in Female Literacy in Urban India: Problems and Prospects

Saraswati Raju

Introduction

One of the major commitments of the National Policy on Education put forward in 1986 is towards equality in education and consequent removal of disparities which exist between various social groups and between genders within these groups.[1] The Indian constitution has a clear-cut directive to states "to promote with special care the educational and economic interest of the weaker sections, in particular, of scheduled castes, scheduled tribes and girls." Various commissions and committees as well as the first National Policy Resolution in 1968 emphasised these aspects of inequalities. However, the current National Policy placed exclusive importance on identification of women, scheduled castes/tribes, backward areas, educationally backward minorities and disabled as special groups warranting attention in terms of educational opportunities on the basis of priority.

This reiterated emphasis on women and scheduled castes stems from realisation that despite repeated and concerted efforts to raise the educational status of these segments of population, the phenomena of sex and caste disparities in education persist, albeit in various degrees at different levels (Aggarwal and Murlidharan, 1983; Ahmad and Nuna, 1986; Kundu and Rao, 1986; Prakash et al., 1988; Raza, Ahmad and Nuna, undated; Raju, 1988; Sahoo, 1987; Sopher, 1980).

The restrictive views regarding female education as well as scheduled castes have roots in religious scriptures whereby women were accorded definite subservient role to play. The scheduled castes, on the other hand, occupied the lowest position on the caste hierarchy performing menial tasks. Both the segments, by virtue of their deprived status, were also denied access to education. The historical deprivation has been so severe that the subsequent efforts to rectify the distortions are still to exhibit significant breakthroughs. Moreover, such disparities are part of wider regional imbalances and spatial distortions consequent upon India's colonial past.

Education delves upon qualitative change which is ultimately linked with endogenous order bringing about gradual social change. If this premise is accepted then the importance of building up of public opinion through social movements cannot be undermined in removing caste and gender inequalities in education. This, however, does not preclude governmental interventions via planned policies and measures. They come as institutional support only and may hasten the process of change.[2] However, planning requires an understanding of the existing situation, especially of constraints under which a given system works. In the meanwhile, a set of socio-economic correlates of various aspects of literacy/education can be identified. On the basis of certain associations which emerge consistently the direction in which planning has to proceed then can be charted.

The Present Study

Within the framework of above discussion the present study analyses different aspects of literacy and the inequalities which exist among females in general and in large urban centres: cities with population of 1,00,000 and more in particular. An intriguing situation prevails. Contrary to a general belief that the cities would have minimal caste and gender biases because of a less constrained social milieu and hence little spatial variation in female literacy, they bear distinct imprint of regional ethos surreptitiously hinting at insignificant impact of urbanisation on literacy especially in bringing down caste disparities.

Women are not homogeneous body. For the analytical purpose, therefore, in this study, they are divided into non-scheduled and scheduled segments.[3] However, such a stratification is still inadequate in capturing the social reality, more so in case of women. For example, a scheduled caste woman is subjected to two-fold discrimination — as a member of deprived sex and as a member of deprived caste. On the other hand, a non-scheduled caste woman, despite her membership in a deprived sex, may overcome her deprivation by virtue of being a member of higher caste. Thus, there may be considerable overlap between caste and gender memberships. An understanding of this multitudinous placement of women is crucial

The concept of inequality invariably connotes a reference point. That is to say, it is a relative measure. Both, the multiple memberships of women and their relative deprivation cannot be appreciated without referring to their male counterparts. As such, the gender relations within non-scheduled and scheduled castes are also explored. The resulting scenario is complex and brings out clearly the inadequacy of assumed binomial associations.

In order to understand the factors which contribute to regional character of cities as well as the processes which have helped certain regions to snap out of historical consistent pattern of caste and/or gender disparities in literacy, a number of socio-economic correlates of female literacy such as presence of particular communities which foster female education or vice versa and composition of work force (taken as surrogate for development) are identified.

Although this analysis is concerned with the urban scenario in general, the issues at stake have been studied and results are documented elsewhere which help draw generalisations about the nature of women's subordinate position in relation to men in different socio-economic strata and regions and the factors responsible for such a situation. Consequent upon these generalisations, the final section of the paper deals briefly with suggestions for removal of regional disparities in female literacy.

The Background Information

With only 36.12 per cent of her people (46.72 per cent males and 24.81 per cent females) able to "read and write with understanding" as per 1981 Census, India is one of the predominantly illiterate countries in the world (Table 1).[4]

Table 2 provides an overview of literacy data since 1901. Although these figures are depressingly low, one redeeming feature is a perceptible increase in female literacy since independence. A still more important point is the narrowing down of gap which exists between male and female literacy as indicated by disparity index.[5] It is significant to note that a rise in the levels of literacy reduces gender disparities in general because it hinges upon a very crucial step towards attaining distributive justice and consequent equality.

The urban context not only enhances absolute rates of literacy, the

Table 1 Illiteracy in the world, 1986

Country	Illiteracy rate %	Country	Illiteracy rate %
India	57	Spain	05
China	31	Oman	70
Zambia	24	Trinidad	04
Sri Lanka	13	Libya (1985)	34
Nigeria	57	Singapore	14
Cameroon	38	Italy	03
Brazil	21	UAE	47
Yugoslavia	08	USA	01
Soviet Russia	00		

Table 2 Progress of literacy in India 1901-71

Census year	Percentage of literate population to total population	Percentage of literate males to total male population	Percentage of literate females to total female population	Disparity
1901*	5.35	9.53	0.69	1.16
1911*	9.92	10.56	1.69	1.02
1921*	7.16	12.21	1.81	0.85
1931*	9.50	15.59	2.93	0.75
1951**	15.67	24.95	7.93	0.54
1961	24.02	34.44	12.95	0.48
1971	29.46	39.45	18.72	0.38
1981	36.12	46.72	24.81	0.33

Source: Census Centenary 1972; Pocket Book of Population Statistics, New Delhi, p.65.

* For undivided India

** Excludes Jammu and Kashmir

reduction in gender disparities is greater as compared to disparities which exist between rural female literates and their male counterparts. In 1981 the gender disparity in literacy is 0.41 in rural areas as compared to 0.19 in urban areas. The disparity index is lowest in case of cities, i.e., 0.15 (Kundu and Rao, 1986; 446). The caste-wise breakup for last three

Table 3 Literacy profile and disparities 1961-1981

	Literacy			Disparity		
Population	1961	1971	1981	1961	1971	1981
Total	24.03	29.45	36.12			
Male	34.45	39.45	46.72			
Female	12.95	18.70	24.81	.48	.38	33
Rural	19.00	23.74	29.57			
Male	29.07	33.76	40.62			
Female	8.55	13.17	17.99	.58	.46	.41
Urban	46.97	52.44	57.19			
Male	57.50	61.28	65.58			
Female	34.51	42.14	47.16	.29	.22	.19
City	51.16	56.47	62.26			
Male	60.27	64.15	69.26			
Female	38.61	47.21	54.10	.26	. 18	.15
Urban non-scheduled caste	46.40	31.98	59.88			
Male	37.43	42.36	67.99			
Female	14.64	20.80	50.64	.46	.36	.18
Urban scheduled caste	21.78	28.65	36.60			
Male	32.16	38.93	47.54			
Female	10.02	16.69	24.34	.56	.42	. 35

decades is given in Table 3. It is clear that as compared to non-scheduled caste the scheduled castes have wider sex disparities although the declining trend is present there also. However, as pointed out by Kundu and Rao (ibid, 462), urbanisation does not seem to have any dampening effect on structural disparities. Thus, the non-scheduled and scheduled caste disparity in literacy is higher in urban context than in rural areas.

Despite the disparity that exists between male and female literacy rates, the two are found to have close association in score of analysis made with Indian data at a variety of scales (Table 4). When the population is divided into non-scheduled and scheduled caste components and these inter-relations are explored further, the associations still hold. A deeper probe further reveals that gender-relations within individual caste groups are stronger than those between males and females irrespective of their caste status emerging as separate classes where females invariably occupy

Table 4 Correlation between male/female literacy in India

Male/female literacy	Scale	Level	Coefficient of correlation	Year
Rural	All India	State	0.990	1971
Urban	All India	State	0.894	1971
Total	All India	District	0.909	1971
Total	Uttar Pradesh	District	0.853	1971
Rural	Five Taluk	Village	0.596	1971
Urban	All India	City	0.898	1981

the depressed or deprived position. That is to say, the distinction is between non-scheduled and scheduled castes as two different social groups rather than between males and females (Kundu and Rao, 1986; Raju, 1988). This is especially true in cities where the spatial covariation in literacy between males and females (class) of non-scheduled and scheduled castes is weaker than sex disparities within the individual caste groups.[6] Thus, one can argue that females should not be viewed as a homogeneous group nor can one assume gender-oriented discrimination to prevail. Within this broad distinction between non-scheduled and scheduled castes, however, the scheduled caste female faces the deprivation even more drastically because her identity as a female superimposes upon her membership in an over-all deprived caste aggravating the situation further (Raza and Aggarwal, 1983; Raju, 1988).

The Urban Scene

Both the gender and the caste disparities vary widely across India. The respective frequency distributions are highly skewed (Figs. 1 and 2). A noteworthy feature is the concentration of highest and lowest values for literacy among male/female and non-scheduled/scheduled castes in just four cities which are located in the south and the north, i.e. Kerala and Uttar Pradesh respectively. Incidentally, the same two states accounted for the highest and lowest literacy rates in cities for 1961 and 1971 (Sahoo, 1987; 25-49).

A discussion of literacy per se is a necessary prelude to the consideration of the disparities between the non-scheduled and scheduled as well as the male and female populations.

The map showing the distribution of female literacy brings out general broad areas of continuous cities within the same class interval (Fig. 3).

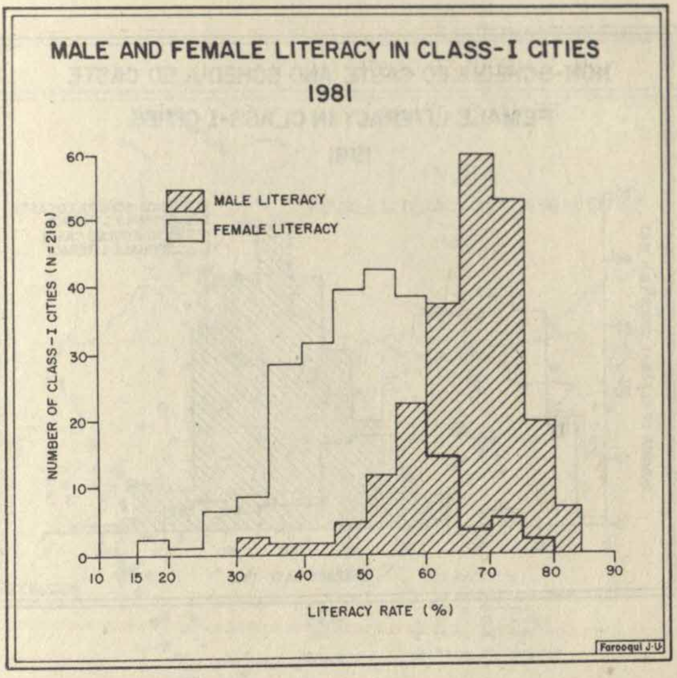


Fig. 1

Regions on or near west coast from Gujarat to the southern tip of Kerala, parts of Tamil Nadu in the south and Punjab, Haryana, and West Bengal in the north are areas of highest literacy. The pattern in the northern plains and peninsular interior is uneven. Cities that record the lowest female literacy are scattered. However, Uttar Pradesh accounts for a large proportion of such cities. In general, areas with a concentration of cities with high female literacy occupy peripheral locations and are largely coastal.

Coastal region of India has historically been area of relatively higher literacy. In general, the explanation lies in their overseas contacts, especially along the more literate west coast where such contacts have been longer and more continuous than those of the east coast (Gosal, 1964:272-4). As pointed out by Sopher (1980:136), precisely how outside contacts foster literacy — whether by creating a demand for increased literacy or by enhancing the awareness about the value of literacy — is not clear.

Cities with high female literacy are characterised by lower disparities between male and female literacy levels (Fig.4). That is, the distribution

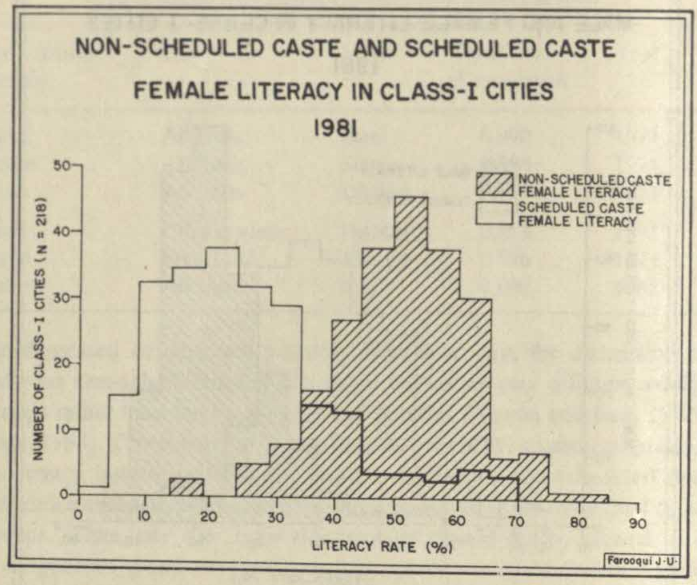
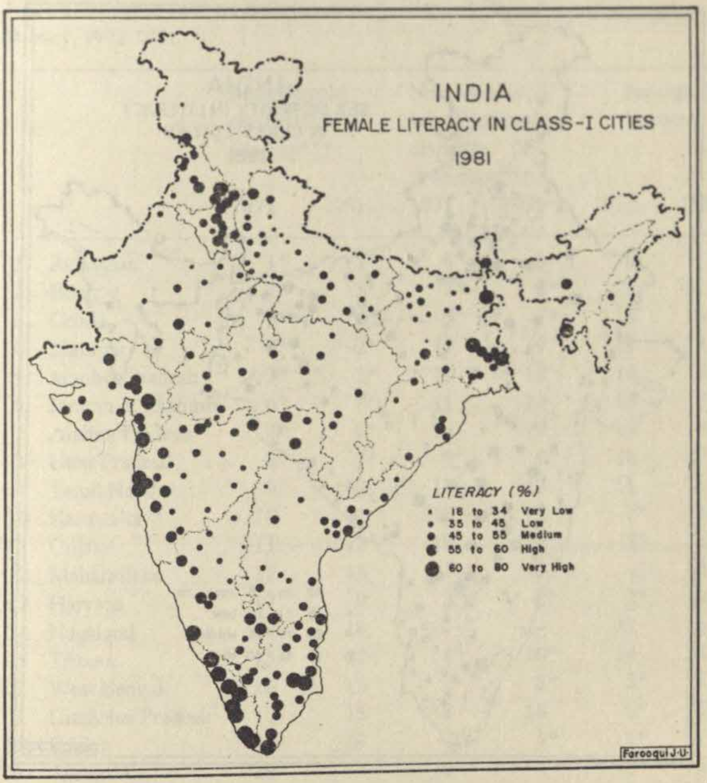


Fig. 2

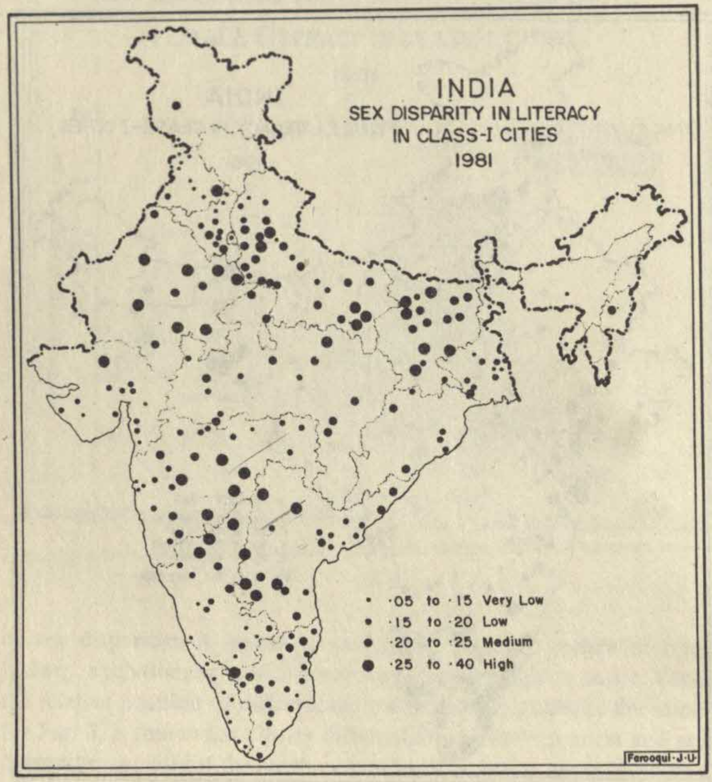
of sex disparities is inversely associated with the pattern of female literacy, a relationship which has already been brought to notice. Though the relative position of different regions remains essentially the same as for Fig. 3, a somewhat clearer differentiation between north and south appears, especially if the south-central band covering approximately the former state of Hyderabad (parts of present Maharashtra, north-east Karnataka and western Andhra Pradesh including Rayalaseema) having high sex disparity in literacy is ignored.[7] The emergence of former Hyderabad state as a statistical plateau in an otherwise low surface of sex disparity in literacy has a historical antecedent and is attributed to especially lower level of female literacy for last two decades (Sopher, 1980:138). Since the broad region is not characterised by marked Christian presence, the significantly different values for sex disparities in this depressed surface of literacy as against the coastal Andhra which is receptive to female education calls for further probe. Perhaps it is due to differentiation among regional cultures which accounts for the regional clustering of disparity scores (Sopher, 1980: 151). This point will be further explored in the latter part of this paper.



Fig·3

Development and Literacy

There is no systematic linkage between development and literacy attainment. However, this statement is to be viewed with some reservation essentially because of arbitrariness of development measures. Besides, a few micro-level observations may suggest close association between development levels and literacy rates which the macro-level analysis obliterate. In the present study, an attempt is made to correlate per capita income of states with various aspects of literacy. At the risk of generalisation it may be stated that neither in terms of absolute levels of literacy nor in terms of distributive justice, i.e. reduction in gender and caste disparities, per-capita income seems to have any statistically significant positive bearing upon literacy status of states.[8] The correlations attempted



Fig·4

are between per capita income on one hand and male/female, non-scheduled/scheduled caste literacy levels and urban population and the disparities therein on the other. The total observations are twenty one. However, as against absolute levels of literacy for various components of population which show no correlation whatsoever with income, the male/female disparities in literacy tend to decrease with increase in per capita income, the coefficients of correlation being – 0.44 and – 0.37 in 1971 and 1981 respectively. It is important to note that although the tendency is clearly discernible, it still has to assume statistical validity. A visual comparison of relevant data presented in Table 5, also corroborates this observation. It may be seen that with very few exceptions the states which are characterised by relatively higher sex disparities for last two decades are invariably those states which have lower per capita income.

Table 5 Per capita income and state-wise gender and caste disparities in urban literacy, 1971-1981

		Male/female disparity in literacy***		Non-scheduled/ scheduled caste disparity in literacy***		Per capita income	
		1971	1981	1971	1981	1971	1981
1.	Rajasthan	1*	1*	6*	6*	10	17
2.	Bihar	2*	3*	2*	3*	20	21
3.	Orissa	3*	4*	5*	7*	16	16
4.	Manipur	4*	2*	19	19	21	13
5.	Madhya Pradesh	5*	5*	10	11	19	18
6.	Jammu & Kashmir	6*	8*	11	14	15	8
7.	Andhra Pradesh	7*	6*	14	17	12	10
8.	Uttar Pradesh	8*	7*	9*	9*	18	20
9.	Tamil Nadu	9*	10	12	13	11	11
10	Karnataka	10	11	15	12	7*	7*
11	Gujarat	11	12	18	5*	3*	4*
12	Maharashtra	12	13	17	15	4*	3*
13	Haryana	13	9	3*	2*	2*	2*
14	Nagaland	14	18	–	–	17	6
15	Tripura	15	17	8*	10*	14	14
16.	West Bengal	16	13	7*	8*	5*	9
17.	Himachal Pradesh	17	15	13	16	6*	5*
18	Punjab	18	16	4*	4*	1*	1*
19.	Assam**	19	—	16	–	13	15
20	Kerala	20	20	20	18	9	12
21.	Meghalaya	21	19	1*	1*	8*	19

* Above national average in respective categories.

** Census was not conducted in Assam in 1981.

*** The States are ranked and arranged in descending order as per first column.

Sources: Columns 1 to 3 Kundu and Rao (1986); Column 4 Census of India 1981 Part II-B (ii); Columns 5-6 Central Statistical Organisation 1978 and 1985-86.

The caste disparities, however, do not exhibit such association. In fact, Haryana and Punjab, the two states with the highest per capita income together with Gujarat (in 1981) have higher caste disparities in literacy as compared to some states with very low per capita income, i.e. Madhya Pradesh and Uttar Pradesh, Meghalaya, is an interesting case with the highest caste disparity in literacy with lower per capita income.

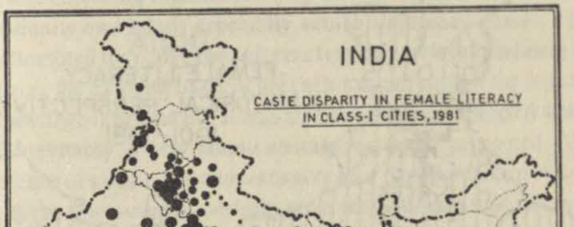
In general, the stability of caste relations in literacy is linked with the structural inequalities in the Indian society consequent upon classical separation of work from knowledge and power (Raza and Aggarwal, 1984:6). It is ironical, that these age-old prejudices are not only being actually reinforced instead of being obliterated, there are no evidences to suggest that these differences are getting reduced (Prakash et al., 1988: 6). In cities also the situation does not change much and the scheduled castes exhibit low literacy levels (Sahoo, 1987: 101-103). The precise association which seems to exist between literacy and scheduled caste presence is statistically explored later in the paper. What is gratifying to note is that despite a very limited measure of development used in the present analysis, the results are in congruence with elaborate observations made elsewhere, i.e., the urban context does not reduce the disparities in literacy that exist between non-scheduled and scheduled caste population (Kundu and Rao, 1986:446).

Thus, although one of the major objectives of any developmental process, that is, narrowing of gap between male and female literacy, is achieved, a corresponding lowering of caste disparities in literacy is not observed. However, this association is not an unilateral one and regional variations consequent upon localised events are quite significant for underprivileged sections of population. In contrast, as pointed out by Kundu and Rao (1986:450), for non-scheduled caste male population the impact of developmental factors and modernisation is important as it tends to reduce the cross-regional variation in their literacy rates. To this may be added the female component of population as well.

Social Movements in India and Their Impact on Caste and Gender Disparities in Literacy: Some Plausible Explanations

In terms of sex disparity in literacy, Punjab and West Bengal in the northern plain are exceptions where cities are characterised by very low values. Sopher's study (1980:183) of sex disparity in Indian literacy argues that the geographically peripheral localities where sex disparities in general are low are also marginal in the Indian cultural realm. Hence, they represent marked departures from Hindu social norms which customarily place female literacy at a low priority. He cites Assam, West Bengal and Punjab as examples where there exists a "low proportion of Brahmins in the population, a simple, somewhat fluid traditional caste structure and a large Muslim minority" and also low sex disparities in literacy. Despite its seeming plausibility, such an explanation is not borne out by the urban data.

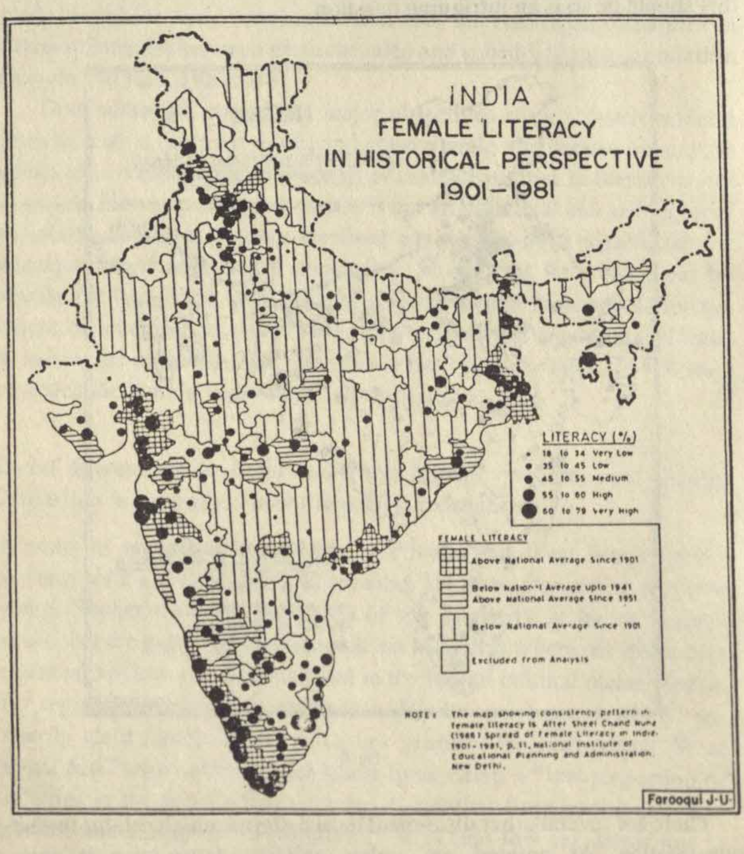
An essential aspect of the rigid Indian caste system is the presence of a group of scheduled castes with a clearly defined social boundary between them and the non-scheduled castes. By implication, therefore, the peripheral areas cited should also exhibit less pronounced disparities in literacy between non-scheduled and scheduled castes. However, no such pattern is clearly visible. Rather, disparities exhibit a distinct north south dimension (Fig. 5). Haryana, Punjab and West Bengal, the spatially marginal states, share with Bihar, Rajasthan, and Uttar Pradesh, prevailing high disparities. Thus, in this regard, there is no deviation of the spatially marginal states from the centrally located states in the northern plain. Why this should be so is an intriguing question.


INDIA
CASTE DISPARITY IN FEMALE LITERACY IN CLASS-I CITIES, 1981
Non Scheduled Caste Female / Scheduled Caste Female Disparity
• 03 to 25 Very Low
• 25 to 40 Low
● 40 to 60 Medium
● Above 60 High
Farooqui J-U

Fig· 5

There are several other discordant local patterns which call for further investigation. As pointed out earlier, relative deprivation is more pronounced between non-scheduled and scheduled segments of population as compared to male and female components. However, for the former Hyderabad state this relationship does not seem to hold. Interestingly, this region is characterised by high values for sex disparity associated with low disparities between non-scheduled and scheduled castes, a situation at variance with that for urban India as a whole.

At this point it is useful to introduce into the discussion another dimension that links with the contemporary pattern of female literacy. Despite government efforts to promote literacy in India, the relative position of major regions (in terms of female literacy) has changed little since the turn of the century. Urban literacy is no exception; the cities with



NOTE: The map showing consistency pattern in female literacy is After Sheel Chand Nuna (1986) Spread of Female Literacy in India 1901-1981, p. 11, National Institute of Educational Planning and Administration, New Delhi.

Fig. 6

high levels of female literacy are located in those areas which have been above the national average since 1901. The converse is also true. Superimposition of the geographic pattern of female literacy in 1981 on a map showing the consistency therein succinctly elucidates the historical relationship (Fig.6).[9]

To obtain a clearer outline of the social lineaments that have constrained Indian women's as well as scheduled castes' access to literacy in a given area, it is necessary to examine the significance of relevant social movements together with their ideological position. In the present analysis, Haryana, Punjab and West Bengal emerge as areas with very low to low sex disparities in literacy. It may be recalled that it was during the second half of the nineteenth century that the Arya Samaj arose in Punjab and adjoining regions as a response to the numerous conversions to Christianity and Islam especially among depressed castes. The Arya Samaj attempted to rectify the defects of rigidity within Hinduism through questioning the existing basis of the caste system and all the injustice and human wastage it produced. It was also a movement directed against the British. Inevitably, a new Hindu identity was to be promoted. Although the existence of a caste structure was accepted it was a variant of the Vedic notion of the four *varnas,* wherein caste membership was not ascriptive by birth but by the kind of life one led. However, the Arya Samaj was not a movement to elevate the "untouchables", i.e. the groups who now comprise the "scheduled castes" and they remained, by and large, socially marginal even in the new scheme of things. Although those who had converted to other religions were reclaimed by Hinduism through *Shuddhi* or purification, their social status remained as problematic as ever (Heimsath, 1963:113-30; Jones, 1979:7-11; Parvathamma, 1983:104-5). What is important to note, however, is that the education of women was central. Women were considered equal to men. Capable of achieving emancipation, they were to be accorded rights commensurate with their abilities (Heimsath, 1964:120).

The parallel Brahmo Samaj movement founded in Bengal also did not repudiate Hinduism and was not directed at bringing about social equality among different segments of society. However, the movement may be credited with establishing a major objective of all Indian social reform movements as well as the social freedom and cultural advancement of Hindu women (Heimsath, 1964:91). Other social reforms of mid-century Bengal were also closely linked with issues related to women such as, widow remarriage, the abolition of polygamy and above all prohibition of *sati* —the immolation of widows on their deceased husbands funeral pyres (Ibid, 74-97; Jordens, 1975).

If, indeed, the facts relating to the persistence of the uneven pattern of female literacy are accepted, then the low sex disparities in literacy in Bengal, Punjab and its neighbourhood may well, at least partially, be explained within the framework of social reforms articulated in favour of women.

The case of Kerala needs no elaboration as the circumstances that fostered female literacy there are too well known to obviate the need for detailed treatment. It may, however, be noted that the high literacy in females associated with a very low sex disparity in Kerala is essentially attributed to a sustained history of traditional learning together with an early start in Western education, both private and under princely patronage (Sopher, 1980: 137).

While the early, essentially upper caste reform movements such as the ones outlined above, were not concerned with scheduled castes per se, movements arose from within the backward sections with different, more radical, aggressive, and militant character which were clearly directed against upper castes and classes (Rao, 1979: 10). One of the earliest movements was that of the once migratory Waddars in Karnataka. Subsequent upon their sedentarisation, the emergence of higher aspirations and educational attainment, the Waddars started claiming higher status through appropriate myths and this claim provided the basic ideology for their movement (Bhat, 1978: 169-89; Rao, 1979: xvi).

Another regional movement of relevance in the present analysis is the one formulated by Sri Naryana Guru Swamy among the Ezhavas, a numerically strong caste of toddy tappers in Kerala. A detailed discussion of its social reforms is not within the scope of this paper. It suffices to note that parity in educational opportunities with others was very much a part of the movement to raise the social status of Ezhavas (Rao, 1979: 30-1).

Maharashtra is characterised by a series of social movements essentially directed against the supremacy of a few high caste groups. In 1873, Mahatma Phule began his *Satyashodhak* (Search for Truth) Samaj; the aim was to save the "lower castes from the hypocritical Brahmins and their opportunistic scriptures". As stated by Heimsath, the Samaj later became the nucleus of a movement in Maharashtra which was to have profound reverberations on social and political life in the 20th century (Heimsath, 1964: 103). Later it was under the leadership of Dr. Ambedkar that the Mahars of Maharashtra organised themselves with a view to fight against their scheduled caste status. Fiske (1972: 119) provides information pertaining to the section of Mahars in different districts in

Maharashtra who adopted Buddhism. The close correspondence between areas with high Buddhist population and low caste disparity in literacy is quite noteworthy.[10]

Tamil Nadu presents an intriguing case. It is characterised by higher values for both sex and caste disparities indicating perhaps a society less effected by national social movements. However, as pointed out by Heimsath (1964: 111) this situation was largely due to a very strong dominance of the Brahmin castes. A structure, undisrupted by frequent Muslim and Maratha influences as compared to northern India, showed no signs then of breaking down under any non-Brahman pressures. The Brahmans themselves could not possibly advocate any fundamental social change without at the same time risking to undermine their hierarchical supremacy.

Other Considerations

So far, the analysis has essentially been confined to the female and scheduled caste components of population. The scheduled castes, by virtue of their socially and economically deprived status, are consistently found to have association with lower literacy levels than the rest of the population. The same is true about women. Any regional ameliorations in these relationships seem to have strong historical underpinnings. However, there are several other communities, such as Muslims and Christians whose presence in the population affect literacy. For example, Muslims generally have a negative association with literacy as observed at various levels (Krishan and Shyam, 1974: 796; Sopher, 1980: 162). Conversely, the share of Christians in the population tends to raise literacy.

The effect of size of city on female literacy is also evaluated. Literacy does seem to increase with increase in settlement sizes accompanied by a decrease in sex disparity (Table 6).

Finally, it may be argued that in the process of transition in social ethos which places increasingly the value on the education of women, the overall level of development is of great significance. In order to gauge this, a somewhat arbitrary measure, that is the percentage of male workers in non-agricultural occupations is taken as a surrogate.

The result of stepwise regression of female literacy against scheduled caste population, Muslim, and Christian population, male non-agricultural workers, and size of the city is presented in Table 7. The total amount of variation accounted for is 57 percent. Three correlations remain highly significant. Female literacy increases as the Christian proportion in the

Table 6 Male-female literacy and disparities by city-size 1981

City-size	Male literacy	Female literacy	Non-scheduled male literacy	Non-scheduled female literacy	Scheduled male literacy	Scheduled female literacy	Sex disparity			Caste disparity	
							Total	Non-scheduled		Non-scheduled/ SC male	Non-scheduled/ SC female
10,00,000+	69.66	53.93	71.65	56.80	53.82	31.63	.16	.15	.29	.18	.32
5,00,000 to 9,99,999	68.22	51.55	70.16	54.21	43.56	30.89	.17	.16	.30	.17	.31
2,00,000 to 4,99,999	66.48	48.44	68.59	51.26	48.24	24.85	.19	.18	.35	.22	.39
1,00,000 to 1,99,999	66.13	47.72	68.46	50.55	46.46	23.95	.20	.19	.35	.24	.40

population rises. On the other hand, the Muslims and the scheduled castes tend to depress the level of female literacy. The statistical explanation thus confirms what has already been recognised.

Table 7 Stepwise regression of female literacy on selected variables

Independent variable/Dependent variable per cent of total population	Per cent of variation explained female literacy
Christian population	28.00 (+)
Muslim population	41.80 (–)
Scheduled caste population	52.90 (–)
Male non-primary workers	55.50 (+)
Size of the city	57.00 (+)

Note: The sign in parentheses indicates the slope of the *b*-coefficient.

Although there is a persistent, if irregular, increase in female literacy with city size, the relationship does not hold when the Christian, Muslim and scheduled caste population enters the equation. Similarly, the percentage of male non-agricultural workers does not appear to have any significant bearing upon female literacy.

In Sum

One of the consistent features in terms of female literacy is that it is closely and significantly correlated with male literacy. No causal association is hinted at. However, the male literacy overall development such as infrastructural facilities, developed water supply, high non-agricultural employment (diversification) are found to be important contributing factors (Schuth, 1980). Added to these are factors leading to agricultural development (Kundu, 1986). In terms of urban settings, social and economic infrastructural facilities are associated with high literacy rates. With a few exceptions, then, in both the rural and urban contexts overall development is crucial for general rise in literacy of which females form an integral part.

Such a developed context also hinges upon the literacy levels of deprived component of female population, i.e. the scheduled castes (as already indicated, despite their low literacy). The present analysis brings out clearly the importance of social movements in breaking the most rigid associations between literacy and particular group/community. The low caste disparities in Maharashtra and low sex disparities in Punjab and Haryana are cases in point. Maharashtra's second rank in terms of literacy attainment in 1981 as opposed to its pre-independence status is noteworthy. One of the major contributing factors was the *Gram Shikshan Mohim*, a voluntary organisation established in 1961. There were other movements as well (Ahmad and Nuna, 1986). In one of the recent reports on school education, the *Illustrated Weekly of India* (1989) places the responsibility for low priority on female education in India to "attitudinal defeat" What is required is a change in the outlook. Based on the histrocial experiences here is where the role of non-governmental organisations and voluntary agencies becomes crucial.

In sum, literacy attainment is part of larger societal changes and needs to be placed in proper perspective without which the regional distortions as well as gender discrimination will not be obliterated even as general literacy rises.

NOTES

1. For a detailed discussion on the concepts of 'equality' and 'equity' see, Raza and Premi, 1987.
2. In accounting for the continuous drop-out rates for females, a report in *Illustrated Weekly* holds the myopia and misconception about female role which bog down female education. It is an attitudinal defeat caused not only by social conditioning but also by faulty and often half-hearted policy measures (*Illustrated Weekly*, Aug. 27-Sept. 2, 1989).
3. The term 'scheduled' refers to specification on a constitutional 'schedule' of castes deemed to have been historically underprivileged; 'deprived' on in the teminology used in earlier Indian census, depressed. The list remains substantially the same as originally prepared by the British in 1935. The non-scheduled population has been obtained by subtracting the scheduled caste and tribal population from the total population. While the scheduled castes often form a homogeneous social group, there is wide variation in the socio-economic background of the non-scheduled component. However, they cannot be further subdivided in the absence of relevant classification in the census.
4. In 1951 there were 11,000,000 illiterates in the age group 15 to 33 which increased to 110,000,000 by 1981. The crude illiteracy in 1981 was 63.77 per cent, for males it was 53.11 per cent while 75.18 per cent females has this

status.

5. Disparity between two groups, of which different proportions possess a particular property (in this case urban literacy) is here measured by Sopher's disparity index (1980) as modified by Kundu and Rao (1986). Non-scheduled caste/scheduled caste disparity is calculated by converting the literacy rates of both the groups and also for male and female components within the groups into logits and subtracting the scheduled caste values from the non-scheduled caste values; subtracting the values for female literacy from the values for male literacy yields the male/female disparity in urban literacy. The presumption is that the behaviour of the non-scheduled caste and the males, as the case may be, is more representative of a normal situation than the behaviour of the scheduled castes and the females. Therefore, the first group is taken first in the disparity pair.
6. This is in contrast with what appears to happen in terms of female participation in labour force. There are scheduled caste — both males and females— together with non-scheduled castes females form a category and the non-scheduled caste men stand apart. See Raju, 1988.
7. The cities which constitute this region are Adoni, Anantpur, Nizamabad, Proddatur and Warangal in Andhra Pradesh, Bijapur, Gulbarga, Hospet and Raichur in Karnataka, and Jalna, Latur, Nanded, Parbhani and Solapur in Maharashtra.
8. Although per capita income as a measure of development has obvious flaws, it does indicate relative standing of various states as far as overall development is concerned.
9. Admittedly, the large extent of areas "excluded from analysis" warrants clarification. Since the major concern here is to identify the areas which have remained almost static in terms of change in relative position of literacy levels, areas which showed positive change in female literacy in post-independent era have been left out. It is done with a view to essentially simplify the pattern to fit in precisely with the argument put forth, i.e. female literacy demonstrates a remarkably temporally stable pattern. It is not implied by any means, however, that the regions which have attained 'above national average' status after 1951 are less intriguing. Their exclusion is merely consequent upon the pointed focus of the present study.
10. There are eight cities which are characterised by especially low caste disparities. These are Bhiwandi, Bhusawal, Chandrapur, Dhule, Gandiya, Nagpur, Nasik and Solapur, with the exception of Bhiwandi, Dhule (Thana district) and Gondiya (Bhandara district) others are major Buddhist centres. Bhiwandi, Dhule and Gondiya have more than eighty percent of Mahar population classified as Buddhists. Also, see Schwartzberg's historical atlas, especially maps showing the distribution of Scheduled castes and Buddhist population and the map of "Religious Revival and Reform Movements" in Section X (Schwartzberg, 1978).

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SIXTEEN

Planning Strategies for Removing Regional Disparities in Educational Development: A Case Study of Leh District (Ladakh)

Harjit Singh

It is being realised that education and development are causally interrelated wherein one leads to the other and vice versa. Significance of education is much greater today, i.e. at the threshold of 21st century. It is feared that India might have world's largest illiterate population in the year 2001. It is, therefore, important that different aspects of regional disparities in educational development are analysed and planning strategies to overcome the same are worked out. It is, however, true that India has made significant gains in education since independence but a lot still remains to be achieved. Most educational development has taken place in urban and other favourable areas. In spite of efforts of the government to remove regional inequalities, many outlying remote and tribal areas continue to lag behind in education and literacy. Special emphasis has been laid in the National Policy of Education 1986 on removal of gaps in the educational infrastructure in remote and inaccessible areas but much of the outcome is yet to emerge. Moreover, educational development seems to be benefitting only a few while certain sections of the society and many communities have largely remained unaffected.

Looking at disparities in terms of male and female literacy, the gaps become more glaring. Moreover, even after establishing a number of new schools in different parts of the country, the quality of education available to an average rural Indian is very poor.

The problems of regional disparities in educational development are more marked in remote mountain areas. It is mainly because:

i) Such areas have rugged terrain and harsh climate. Thus, even when schools are established, they remain unapproachable to a sizeable section of population due to large distances or in particular seasons because of severe environmental conditions.

ii) These regions generally have self-subsistence economy based on rudimentary cultivation or pastoralism. The situation is changing today and correspondingly the traditional social institutions are also getting altered. Earlier the traditional activities were absorbing all labour force including children but now young people are looking for new opportunities and jobs.

iii) Most people inhabiting such areas are first generation learners and they have community/region specific requirements as well as problems of education.

Ladakh is typical of such areas which have hostile environment and are inhabited by simple communities. The region underwent significant changes in the recent past enhancing awareness as well as inspirations of the local population. Moreover, peculiar environmental conditions, lack of infrastructure and low level of economic development make the problems of educational development and of regional disparities therein more *region specific*. It, therefore, becomes essential to analyse and comprehend the following for raising the level of educational development in Ladakh:

i) The natural environment and its constraining role on educational development.

ii) The traditional socio-economic set up and changes therein to have an idea about specific educational requirements.

iii) Existing levels of literacy and of educational infrastructure and regional disparities in these.

iv) Strategies/recommendations to reduce regional imbalances in educational development.

Ladakh[1] occupies the eastern most part of Jammu and Kashmir state with grid location extending from approximately 32°15'N to 36°N latitude and 76°E to 80°15'E longitude. Covering an area of 45,110 sq km it is among the largest districts of India. The entire region is highly mountainous except its eastern part which is a plateau. Zanskar and Karakorum ranges form the southern and northern boundaries of Leh district respectively and Ladakh range traverses the district through the middle. Mountain ranges though form important positive relief feature are largely negative from the point of view of human activities. These provide mainly barren rocky surfaces largely devoid of soil and vegetation cover. Eastern part of Ladakh called Changthang has "wonderfully even surface" and is a typical high altitude plateau. General elevation is above 4000 meters and again largely is unfit for permanent human settlements. High elevation and ruggedity thus, act as major constraints on human activities on the one hand and on educational development on the other. It is seen that nearly 68 per cent of the total land lies above 5000 meters above the sea level and is virtually unfit for vegetative and human life. The land lying between 4500 meters to 5000 meters, constituting above 5.6 per cent of total area permits pastoral activity of rudimentary kind. Settled agriculture and permanent settlements are confined to areas lying below 4500 meters above sea level.

The second major environmental constraint on human activity is imposed by cold arid "Highland Climate". Both temperature and precipitation — the crucial elements of climate, affect life in Ladakh. Mean monthly temperature at Leh ranges between – 8.4°C in the month of January to 17.4°C in July. Winters are severe and minimum temperature remains below freezing point for about seven months, i.e. from October to April. Changthang and villages situated at higher elevation than Leh town experience even lower temperature. Therefore, the movement of school going children during winter months gets considerably restricted. Apart from this the precipitation received in the region is less than 10 cm in a year. Moreover most of it falls during winter months in the form of snow. Thus, the main economic activity, i.e. agriculture has to be completely dependent on irrigation. This makes agriculture more labour intensive, absorbing even children of school going age.

Due to the environmental factors discussed above and also because of largely agrarian economy, the permanent settlements have certain prerequisites to emerge. These are:

i) Relatively lower altitude where temperature is high enough for a reasonable length of period so that at least one crop in a year can grow and mature.
ii) Relatively flat area which could be levelled or terraced for agricultural purposes.
iii) Presence of adequate soil cover to sustain plant life as large tracts are in the form of bare rocky surfaces.
iv) Availability of water for irrigation due to very low precipitation

during agricultural season.

Because of these factors all permanent settlements are confined to river valleys in the Western and Northern parts of Leh district. It is, therefore, not surprising that total area covered by villages is only 393.9 sq km accounting for 0.67 per cent of the total geographical area.[2] Most villages are in clusters comprising a few settlements and each cluster is separated by vast uninhabited tracts. Changthang is not suitable for agriculture because of very high altitude and most of the inhabitants known as Changpas are pastoral nomads. They are mobile and have temporary settlements posing a specific problem for the education of their children. Even the permanent agricultural settlements are not compact but are scattered in the form of hamlets. Hamlets come up close to agricultural land. Infact most of census villages represent a group of hamlets. Many villages are made up of four to five hamlets at places with inter-hamlet distance of 10 km or more. This poses serious problem for establishing schools. It means that a school in a village may remain unapproachable to children living in the distant hamlets of the same village. On the other hand, many hamlets are too small to merit establishment of a separate school under the accepted norms.

Table 1 Hamlets and primary schools

Name of block	Total No. of hamlets	School within Hamlets	Upto 1 km	More than 1 km
Durbook	23	15 (65.2%)	-	8 (34.8%)
Khalsie	76	55 (72.4%)	13 (17.1%)	8 (10.5%)
Leh	124	60 (48.4%)	44 (35.5%)	20 (12.1%)
Nubra	65	42 (64.6%)	3 (4.6%)	20 (30.8%)
Nyoma	32	29 (90.6%)	-	3 (9.4%)
Total for Leh district	320	201 (62.8%)	60 (18.8%)	59 (18.4%)

It is clear that though there are 161 primary schools in 112 inhabited villages yet 59 hamlets are situated at a distance of more than 1 km away from school. Infact there are 31 hamlets with primary school at more than

2 km away. Distance is more than 5 km in the case of 7 hamlets with maximum being 45 km. Table 1 shows that 18.4 per cent hamlets are not being served by primary schools. Such hamlets are more in remote parts of Leh district as is the case of Durbook block which is situated in eastern Ladakh (Changthang). This is despite the special efforts of the government to establish more schools in the region. There were 161 primary, 42 middle and 17 high schools in the district in 1986-87. Comparable figures are 91 primary, 14 middle and 6 high schools in 1971 and 83 primary, 4 middle and 2 high schools in 1961. There is no college in the district.

As stated earlier, understanding of socio-economic set up is important to comprehend the significance of education in a society. Traditionally Ladakh has been a pastoral-cum-agricultural society. Pastoralism is confined to Changthang area. Rest of Ladakh has subsistence farming. Farmers mainly grow food crops consisting of Grim (Naked barley), wheat and peas. Other important crop is oal (Alfa-Alfa) for feeding the livestock during winter months when natural pastures are not available due to extremely low temperature. Infact agricultural activity is also confined to four to five months when temperature is high enough permitting the seed to germinate and plants to grow. All food crops are mainly raised for self-consumption. Foodgrains are roasted then ground to make Tsampa (Sattu) which is the staple diet. Social institutions were evolved in the light of their ecological suitability keeping in mind the harsh environment and backward economy based on agriculture confined to limited cultivable land. Due to environmental constraints the land that could be brought under plough was very limited. This, therefore, reduced the carrying capacity of land. It is more so because in most parts of the district only one crop in a year can be raised. It was thus important that the size of population is kept small and the fragmentation of land is checked. The latter is also important because already small land holdings if fragmented would lack economic viability.

These objectives were achieved through the polyandry system of marriage. Under the system only the eldest son in a family could marry and his two younger brothers would automatically become co-husbands of his wife. If number of sons in a family was more than three the youngest usually used to leave the family and join Gompa (Buddhist Monastery) as Lama (Monk). This system kept small size of population and all property passed only to the eldest son ensuring no fragmentation of land. This kind of subsistence economy absorbed most of the labour force, even the children in school going age group. Thus modern education had little relevance to the society. Even the category of hired labour did not exist.

Labour intensive work such as sowing and harvesting, was carried out by *Phuspun*. Phuspun is a social unit consisting of immediate family members and close relatives such as cousins, etc. Labour is done on mutual exchange basis.

Another important institution of Ladakh is the Gompa-Buddhist Monastery. Though gompa is a religious institution but it played very significant role in all secular aspects of life and emerged as a "community centre".[3] Beside its role in economic, political, medical and cultural spheres, it was also an important education centre. The first education centres in Ladakh were "Lhaprims" run by the Gompas. These centres were providing mainly religious education to Lamas (Buddhist monks) but the facility was also extended to children of affluent families. With the setting up of government schools the significance of Lhaprim greatly declined. After acquiring basic education at Lhaprim, the monks used to go to Lhasa for further studies.

Though a number of schools were set up in Ladakh after independence, these attracted but very few students. Probably the modern education had limited relevance in the self-subsistence society of Ladakh. The parents were largely indifferent towards the education of their children. Two major events occurred in the recent history of Ladakh which brought about significant changes in all aspects of Ladakh including education. These made modern education more relevant and introduced awareness among the locals leading to rise in the demand of education.

1. Realisation of strategic significance of Ladakh after India-China border dispute of 1962. The importance of the region got further enhanced after Indo-Pak disputes of 1965 and 1971. Ladakh is the only region of India which has international boundary both with China as well as Pakistan. Unfortunately, our relations with both the countries have not been friendly. A large contingent of the Indian army moved into the region. The incoming of the Army brought about significant social and economic changes. Enhanced strategic significance also resulted in the construction of Leh-Srinagar highway on which regular traffic started in 1966. This resulted in the following.

a) a new section of Indian Army called Ladakh scouts was raised providing employment to Ladakhi youth;

b) interaction of Ladakh with rest of India increased manifold. Prior to it the region had limited interaction with other Indian territories infact even inter-valley interaction within Ladakh was low.[4]

c) The economy which was based on barter system of exchange got transformed into money economy. Market developed at Leh town to supply goods to the army. It made different commodities available to the local population as well. The farmers started growing new commercial crops mainly vegetables to supply to the Army because they could now buy foodgrain from the market.

2. Coming of Ladakh on the international tourist map in 1974. Earlier Ladakh was a restricted area and all non-Ladakhi Indians had to get a permit to visit the region. Parts of the region were opened to tourists in 1974. The rich cultural heritage, exotic land and Tibetan form of Lamaistic Buddhism started attracting tourists. Presently Ladakh receives over 20,000 foreign tourists annually mainly from Western Europe, Japan and USA. This provided a sudden exposure to Ladakhis in a big way. Consequently, tourism developed, the economy got completely commercialised and a large number of hotels, guest houses and restaurants came up.

These developments brought about significant changes in the traditional way of life. The polyandrous marriages which were banned in 1950s by law but were persisting, declined in a big way after 1962 and have nearly disappeared from the region now. This factor along with inmigration of traders and hoteliers led to sudden rise in population. It is not surprising that the population of Leh district which was growing at a decadal growth rate of less than 10 per cent during 1901-61 rose by 19.05 per cent in 1961-71 and by 30.53 per cent during 1971-81. Moreover, the number of young people joining monastic order as monks declined. With commercialisation of economy *phusphun* was replaced by hired labour. It may be noted that the number of agricultural labourers increased from 805 in 1971 to 2614 in 1981 registering an increase of about 225 per cent. Demand of commodities increased so did the proportion of workers in non agricultural activities. Workers in non agricultural activities grew by 42 per cent while cultivators registered an increase of only 23.4 per cent during 1971-81. All these changes took place mainly due to awareness that came about in the recent past. In a survey of six villages conducted by the author in 1988 and 1989, it was observed that nearly 50 per cent respondents wanted government jobs as profession for their children. Aspirations have risen along with awareness. This raised the importance of modern education. However, these changes are noticeable more in settlements which are either administrative headquarters such as district or block centres or are located near these. These were also observed in villages situated either on the main roads or near army centres. The pattern shall become clear by looking at the disparities in literacy levels.

Table 2 Literacy in Leh

Literacy percentage	No. of villages
Above 40%	6
30% to 40%	12
20% to 30%	36
10% to 20%	30
Less than 10%	28
Total villages	112

Nearly 24.2 per cent of the population was literate in Leh district in 1981. It was a significant improvement since 1961 when literate population accounted for only 10.8 per cent of total population. The figure rose to 15.8 in 1971. Leh town had 42.6 per cent literacy as against 21.7 per cent in rural areas. Table 2 shows that nearly 18 villages accounting for 16 per cent of total villages had literacy of above 30 per cent. Six villages registered literacy level of above 40 per cent. As against this 28 villages recorded less than 10 per cent literacy and infact literacy was below 5 per cent in nine villages out of these. Village wise literacy data reveal the following:

i) Some Gompa villages like Hamis (63.5%), Thiksay (32.6%) and Saktie (30.4%), etc. recorded high literacy. It is mainly due to the concentration of Lamas many of whom are 'literate' without any formal education.

ii) Administrative centres such as block headquarters or villages situated near these or in close proximity of Leh town show higher level of literacy. The point is illustrated by Khalsie (51.6%), Durbook (31%) and Nyoma (30.2%) in the case of former and Chuglamsar (47.5%), Saboo (45.4%), Shai (37.5%) and Fai (35.7%) for latter. Chuglamsar situated very close to Leh also has a number of government offices and the Central Institute of Buddhist Studies.

iii) Other villages having high literacy level include either those situated on Leh-Srinagar Highway, e.g. Khalsie (51.6%) and Nurla (36.9%) or are situated close to army centres as is the case of Marchlang (33.4%), Kerey (32.8%), Nimo (31.4%) and Warisfastan (48.0%), etc.

iv) Villages situated in isolated valleys or which are smaller in size generally have low literacy.

The above discussion shows that the situation is not very satisfactory. Unfortunately village wise data regarding education level are not available. But the empirical observations show that very few Ladakhis have been able to attain higher education. The Government has introduced a few incentives such as border area scholarships and have reserved a few seats in some state education institutions such as Regional Engineering College, Srinagar. Ladakhis have been fighting for Schedueld Tribe status on lines similar to that provided in Lahul Spiti District of Himachal Pradesh. It is sad that this demand has remained unfulfilled. It is true that a few Ladakhis have been able to get engineering and medical degrees from Srinagar colleges but it is mainly due to the reservation of seats and the number of such professionals is very small. A few Ladakhis have been able to get master degree and one even got Ph.D. Alas, such students spent long time finding suitable jobs and remained unemployed for years. This proved disincentive for some parents to send their children for higher education. It may not be out of place to mention that during field surveys conducted by the author, many people made reference to educated unemployed youths and questioned the utility of such education. Today education is taken as a means to an end and the end in most cases is employment. The picture becomes gloomier looking at the situation of female literacy and the conditions of schools operating in the region.

Female literacy is an important measure of social awareness especially in tradition bound societies. It is in a way more important than male literacy because an educated mother can be a motivating force for the children to go to school. Female literacy in Leh district was as low as 11.8 per cent in 1981. It shows that women were lagging far behind the males in the field of literacy. In fact 57 villages accounting for 50.9 per cent of total villages had female literacy of less than 5 per cent. Out of these 18 villages had no literate female at all. There were only 3 villages, namely Chuglamsar (42.3%), Saboo (32.6%) and Nurla (31.6%) which had more than 30 per cent literate females. Education facilities in all the three villages are good. Chuglamsar has a large number of government officers staying there along with the families. Saboo is situated close to Leh town and Nurla is on Leh-Srinagar highway. In fact as one moves away from Leh town and Leh-Srinagar Highway, the female literacy also tends to decline. In some gompa villages like Hamis, the female literacy is relatively high, i.e. around 20 per cent. This may be because of Chomos (Nuns) living there. Interestingly many villages in Nubra Valley and Kerey village in Eastern Ladakh have 20 per cent or more literate females. This may be the effect of Army which is settled there in large number.

Looking at the schools and enrolment figures one finds that most of the schools are housed in Kuccha mud structures without much facilities. Nearly 39.8 per cent schools had space of two rooms or less, about 44 per cent teachers were untrained. Around 49.9 per cent class sections either had no or unusable blackboards. Similarly, 50 per cent sections were without or with inadequate mats and 23 per cent had no furniture even for the teachers. Nearly 75.7 per cent schools have no books at all. The above figures speak about the quality of education available to the children in Ladakh.

Table 3 Class-wise enrolment of children in primary schools, 1986

Class	Rural		Urban	
	Male	Female	Male	Female
I	1080	898	242	177
II	957	623	137	116
III	750	610	136	90
IV	553	439	122	117
V	577	430	99	111

Table 3 shows that 8,264 children were enrolled in the primary schools of Ladakh. Progressive decline in the number of children in higher classes is noticeable. The decline is more in the rural areas. Though there are fewer school going girls but their number shows significant decline in higher classes in the urban areas. This fall in the number of children in higher classes can partly be explained by high drop out rates. It is seen that many children do not continue their education after staying in school for two to three years. As stated earlier a large number of children are absorbed in agricultural and pastoral activities at an early age in Ladakh. Actually as many as 41 per cent boys and 57 per cent girls in the age group of 6-10 years were not attending school in 1981.

All the factors discussed above present a highly varied picture within Ladakh. In order to have an idea about the regional disparities in educational development an Educational Index (EI) has been worked out for all 112 villages of Leh District. The purpose of EI is to know the relative position of each village within the hierarchy of villages. The index is based on the following four indicators of educational development:

1. *Literacy:* The indicator is self-explanatory as it shows the level of

awareness as well as effect of educational infrastructure. The variable was calculated by taking percentage of literates to total population.

2. *Female Literacy:* The indicator shows percentage of literate females to total females in a village. As stated earlier female literacy is an important indicator of educational development.

3. *Accessibility of the Village:* This is an indirect indicator of educational development, more specific to Ladakh. It is seen that villages linked with pucca road generally have higher general as well as female literacy. Moreover schools also tend to be set up in more accessible villages. The indicator has positive correlation with all the other three indicators with value of the coefficient being 0.363 with general literacy, 0.353 with female literacy and 0.352 with educational infrastructure. All these correlations are significant at 0.01 level. The author is of the view that transport infrastructure is a prerequisite for any development including educational development in Ladakh. Empirical observations show that the schools which are established in unapproachable villages are either not functioning at all or are working very inefficiently. At times such schools exist on paper only where teacher is perpetually absent and pupils do not attend. It was seen that with the construction of roads the performance of schools also improved considerably. The data were available in the form of presence of Pucca road or Kuccha road/Bridle path. In order to make it a variable weightages were assigned. Pucca road was given weightage of three as against one for kuccha road.

4. *Educational Infrastructure:* Schools were considered for this indicator. Data available in the form of attributes, i.e. the presence or otherwise of school in a village. Moreover, three types of schools are found in the region. Thus, to convert educational infrastructure into a variable which could be used as an indicator of educational development, weightages were given to different types of schools. High/Higher Secondary school was assigned weightage of 5, middle school of 3 and primary school got weightage of 2. Other education centres such as adult literacy centres, etc. were given weightage of one. These weights in each village depending on the number and type of schools were added to get educational score showing the level and extent of available educational infrastructure.

Finally, the above mentioned four indicators were composited to get Educational Index. The indicators were composited by making values scale free. This was done by dividing each value of the column by the respective mean $(\overline{x})$. Subsequently the scale free values were added to get EI for each village. Mathematical formulation of the method is as follows:

$$EI = \sum_{j=1}^{m} x_{ij}/\bar{x}_j$$

x_{ij} = value of jth variate for ith village

m = number of variables

The value of index shows level of educational development. The assumption being that higher the EI, higher will be educational development. All the villages have been categorised taking Standard Deviation (SD) as interval from mean.

Table 4 Level of educational development

Category	Value of EI	Rank	No. of villages
More than mean + 2 SD	More than 8.64	I	9
Mean + 1 SD to Mean + 2 SD	6.32 to 8.64	II	10
Mean to Mean + 1 SD	4 to 6.32	III	26
Mean – 1 SD to Mean	1.68 to 4	IV	51
Less than Mean – 1 SD	Less than 1.68	V	16

Table 4 shows marked regional disparities in the levels of educational development. Only nine villages recorded high EI. All these nine villages are either situated on Leh-Srinagar highway or are near Leh town. Only exceptions are Hamis and Tamisgam. Tamisgam is a large village having good educational infrastructure while Hanis is a religious centre with large concentration of "literate" lamas (Monks). Most of the villages having low score are situated in Nubra, Changthang and in the isolated side valleys in the Leh and Khalsie blocks, e.g. Nang, Kiomarkha, Fotoksar, etc. The need, therefore, is to pay special attention to the 67 villages occupying IV and V ranks to reduce disparities in educational development of Ladakh.

In the light of the above discussion and on the basis of empirical observations one would like to make the following specific recommendations in order to achieve the above stated goal:

1. There is need to construct roads to link villages lying in side valleys. It has been observed that most of the villages scoring low rank are not linked by Pucca roads. As mentioned earlier that even if schools are set up in unapproachable villages they do not function properly.

2. Planning for education needs to be done taking hamlet as a unit rather than census villages which have limited meaning in Ladakh. Though single teacher schools are not in vogue today but isolated hamlets of Ladakh probably need such schools as the student population is very small. This requires spatial planning in a hierarchical order where each hamlet is provided with a primary school. Middle school needs to be established for a few villages and high school for a few small valleys. In more isolated parts of Ladakh middle and high schools need to have residential facilities for students. This facility is required because of very small size of hamlets and large inter-settlement distances. Such a provision would also help Changpa nomads of Changthang. It may, however, be pointed out that such schemes can be successful only if sufficient incentives are provided in the form of free meals, books and stay especially in the initial stages. Better students from each sub-valley should be helped in securing admission in institution of higher learning. Leh town being at the apex of settlement hierarchy should have a college.

3. Schools need to provide attractive and comfortable atmosphere. Experiments conducted in Ladakh have shown that indoor temperature can be raised to a comfortable level by providing double glazed sun facing wall. This would call for little additional investment but shall make schools very attractive to the children even during severe winter months. Moreover, a school should be viewed and developed as a community centre in this area. The building can be used for meetings and other social gatherings. An attempt should be made to organise functions encouraging parents of the children to participate. The building can also be used for imparting skills in the spare time. Committees to supervise the functioning of school need to be constituted consisting of officials and representative of local village community. It would help in inculcating the feeling of participation among villagers. Talini Samities formed by Jammu and Kashmir Government is certainly a right step in this direction.

4. The curriculum should be based on local needs. Vocationalisation in such areas can be important and schools can be used for imparting training in basic skills. Tourist industry in Ladakh has grown very fast. The children need to be taught the role of tourism and about local environment. It was noted during field surveys that many children aspire to become tourist/trekking guides. For this they require knowledge of English language to converse with tourists coming from western countries. In fact, many children stated that the main purpose of their going to school was to learn English language. Thus, possibilities should be seen whether English along with local language can be introduced at an early stage on

Central School pattern.

5. Teachers' training and commitment play basic role in educational development and in the functioning of schools. These have greater significance in backward areas like Ladakh where settlements are isolated and parents indifferent to the education of their children. It has been observed that non-Ladakhi teachers find it very difficult to work in the harsh environment of Ladakh. Many of them do not feel committed and treat Ladakh tenure as punishment posting. Till 1970s most teachers working in Ladakh were from Kashmir and Jammu provinces. Situation has changed significantly as more and more Ladakhis have joined teaching. Though local teachers have better rapport with the village people and have contributed significantly towards education, many of them lack training and proper qualification. Thus, inservice training of such teachers is recommended especially in the psychology of handling first generation learners and recently exposed parents. Incentives need to be introduced for better teachers. The incentive scheme must have a spatial dimension whereby teachers are selected for this purpose from every valley or cluster of settlements.

6. Educational development in Ladakh and other similar backward areas can take place only if education is taken as an integral part of overall planning. Along with opening new schools, it is equally important to ensure that children stay in school and complete their education. The local authorities must keep watch on the future of educated youth and they should be provided suitable jobs after completing their studies. Educated unemployment can be a big disincentive to educational development of simple societies.

7. Finally media, especially electronic, can play important role in the diffusion of education. Some parts of Leh district are already covered by Doordarshan. The facility is likely to expand to other areas. Moreover, video can be another input. It is true that most villages of Ladakh have no electricity but portable generators can solve this problem. Army in remote parts do have this facility and it should be examined whether it can be extended to local people. Software on education is already developing in India. But this can be a workable idea only if these programmes are integrated with the curriculum programme of the schools.

The author is aware that above recommendations if accepted shall require large financial investment. Looking purely in terms of economics, any planner would reject these as being economically non-viable particularly keeping in mind large area and very small size of population involved.

But can we afford to look at the question of educational development in economic terms alone in a strategically important region of Ladakh? Discontent among local population is already spreading. If special efforts for planning and development, of which education is an important component, are not made it would strengthen centrifugal forces which have started emerging in the region.

NOTES

1. Ladakh comprises two districts of Leh and Kargil. The present study deals with Leh district of Ladakh.
2. For details see Harjit Singh, "Environmental Constraints on Agriculture in a Cold Desert: A Case Study of Ladakh" in *Perspective in Agricultural Geography,* ed. Noor Mohammad, Concept Publishing Company, New Delhi.
3. For details see H. Singh "Territorial Organisation of Gompas in Ladakh" *Himalaya Ecologie-Ethnologie,* C.N.R.S., Paris, 1976.
4. See Harjit Singh, "Evolution of Space Relations in a Semi-Closed System — A Case Study of Ladakh", *Our Cultural Fabric — Cultural Heritage of Ladakh,* Ministry of Education, Government of India, New Delhi, 1979.

SEVENTEEN

Regional Disparities in Educational Development in Punjab

Baldev Singh and R.K. Bansal

Education is a process of developing the ingrained mental faculties of human beings. It may formally be acquired by attending the educational institutions or through experience over time. Both of these educational avenues are associated with the developmental level of a region and historical accidents that help in the setting up of industry enterprises as well as educational institutions. These forces are likely to reinforce each other. Whereas educational institutions tend to develop formal education, the industrial enterprises encourage the setting up of educational institutions for formal education and also informal education through experience. We propose to confine our analysis to formal education only.

Universalisation of education, particularly primary education, has been the favoured objective of planners and slogan of politicians across Asian, Latin American and African countries. India has been no exception to it. Same holds for Indian States, say Punjab.

The attainment of the above highly sought after objective of universalisation of education would imply reduction in inter-regional disparities in educational level. For otherwise, the historically educationally advantageous regions would not allow the less fortunate to come to their level. In other words, the above hypothesis implies:

i) those regions which were earlier endowed with better educational facilities will add fewer such facilities and those which lagged behind will add more of such facilities;

ii) literacy rate differentials amongst the region should decrease; and

iii) the implicit premise in the preceding hypothesis is that quality differentials in education will also get narrowed.

We propose to verify the validity of these hypotheses with the help of the experience of the Punjab State, the most developed State of the country. It is hoped that the rest of the country would replicate its experiences. This paper is primarily based on the secondary data collected from relevant issues of *Statistical Abstract of Punjab.* It is divided into four sections. Each one of these hypotheses is examined in Sections I, II and III. The policy implications are discussed in Section IV.

I. During 1973, Punjab boasted of 10,948 schools (Table 1). More than three-fourths of these were up to primary level only (8337). In consonance with the national planning objective of universalisation of primary education, the number of schools has been increasing over time. By 1986, there were 16,318 schools. In other words, the schools have grown at the rate of 3.12 per cent per annum — a rate much above the population growth rate. During this growth scenario, the relative importance of primary schools has suffered marginal disadvantage, although these continue to account for three-fourth of the total number of schools. Their percentage share fell from 76.15 during 1973 to 75.5 during 1986. This marginal swing suggests that there is an increase in demand for post-primary education and setting up of additional institutions to cater for it is a rational response.

In consonance with our hypothesis, inter-district variations in number of schools in 12 districts comprising the Punjab State has tended to decrease. The district having lower base tended to register higher growth rate in its school population than those districts having better school facilities. Consequently, the inter-district school population disparities when measured in terms of coefficient of variation register a significant fall from 30.09 per cent during 1973 to 26.89 per cent during 1986.

Test of the pudding lies in its taste. Schools are only a means towards spread of education. Accordingly, it is imperative to know what proportion of the population acquires education and how it is distributed amongst the districts. We, thus, require district-wise school enrolment and age profile of population lying between 5 and 17 years of age. Unfortunately, district-wise age profile statistics are not available. Even at the State level the relevant age profile statistics are clubbed: 0-14 year and 15-19 year age group. Assuming homogeneous distribution of population within the age class group, we have computed the population statistics for 1981 (we are quite conscious of the limitations of the homogeneous distribution assumption within a class interval in a situation when population is growing at plus two growth rate). We superimpose the assumption of 5-17 year on the school enrolled students. (By doing so we implicitly assume that bright students who join at relatively junior age cancel the less bright students who often join at a latter age or repeat classes at the school level.) A section of the students which ought to have been enrolled (theoretically) with the schools are attached with the colleges in Punjab. Their separate statistics are not available. Thus, our school enrolment number has an inbuilt downward bias. Nevertheless, we have computed the percentage of the enrolled students of the school going population. It turns out to be about 60 per cent[1] during 1981. In other words, two-fifth of the school going population withdraws from the schools or just do not go to the schools at all even in Punjab.

Table 1 District-wise growth of schools and enrolment in Punjab, 1973-1986

District	Schools			Enrolment		
	1973	1986	Growth rate (per cent)	1973	1986	Growth rate (per cent)
Gurdaspur	1104	1666	3.22	242299	297125	1.58
Amritsar	1364	1894	2.56	309901	415623	2.28
Kapurthala	442	647	2.97	90524	98888	0.68
Jalandhar	1196	1644	2.48	292313	337649	1.12
Hoshiarpur	1028	1788	1.12	238826	265743	0.82
Rupnagar	631	1172	4.88	113417	153649	2.36
Ludhiana	1012	1434	2.72	269657	331536	1.60
Ferozepur	1013	1435	2.72	174176	236248	2.37
Faridkot	679	1090	3.71	205665	272258	2.18
Bhatinda	586	911	3.45	158533	202800	1.91
Sangrur	739	1064	2.84	167263	217995	2.06
Patiala	1154	1573	2.41	218795	283473	2.01
Punjab	10948	16318	3.12	2481369	3112997	1.76
SD	274.53	365.71		65524.8	81823.85	
$\bar{X}$	912.33	1359.83		206780	259416	
CV (per cent)	30.09	26.89		31.69	31.54	

Source: Government of Punjab, *Statistical Abstract of Punjab* relevant issues.

In the absence of district-wise age profile statistics, we are compelled to ascertain the inter-district disparity only in terms of students enrolled in the schools. During 1973, 24.8 lakh candidates were enrolled for education at the school level. Their number increased to 31.13 lakh by 1986. It thus registered a annual compound growth rate of 1.76 per cent, a growth rate much lower than the corresponding growth rate of school population (3.12 per cent). The differentials in the growth rate of school and enrolment suggest that enrolment has failed to accompany the growth in the school population. To the extent this implies the poor enrolment in new schools, the inter-district disparities in enrolment is not likely to register any substantial fall. In fact it is so. The coefficient of variation of school enrolment registered only a nominal fall from 31.69 per cent in 1973 to 31.54 per cent in 1986.

To sum up, only three-fifth of the school going population goes to schools. The target oriented government approach has succeeded in reducing the inter-district variation in school population but failed to do so in terms of the school enrolment — a step in higher hierarchy towards achieving the objective of universalisation of education.

II. What about the inter-district disparities in literacy rate? Inter-district literacy disparities are expected to narrow down in situations where disparity in enrolment in schools registered substantial reduction; otherwise not. Since we found only a marginal reduction in disparities in enrolment over time, we would expect literacy disparities to register marginal change, preferably reduction. In fact it is so. The coefficient of variation in literacy rate registered insignificant change during 1971 (19.34 per cent) and 1981 (19.33 per cent). During this period literacy rate has improved from 33.67 per cent to 40.86 per cent (Table 2).

The policy tilt in favour of education of female population is amply brought out when we examine sex-wise literacy behaviour (Table 2). Female literacy rate continues to be lower than male literacy rate, although both have registered substantial improvement. Male literacy rate has increased from 40.40 per cent (1971) to 47.16 per cent (1981) and the female literacy rate from 25.90 per cent (1971) to 33.96 per cent (1981).

There is hardly any change in inter-district disparities in the male literacy over time; coefficient of variation fell down from 17.17 per cent in 1971 to 17.13 per cent in 1981. The disparities registered a decline in case of female literacy rate from 24.26 per cent in 1971 to 22.35 per cent in 1981.

In brief, failure of flow components (enrolment) in reducing inter-dis-

Table 2 Sex-cum-district-wise literacy rate in Punjab, 1971 and 1981 (per cent)

District	Literacy rate					
	Male		Female		Overall	
	1971	1981	1971	1981	1971	1981
Gurdaspur	41.40	50.29	26.2	35.99	34.23	43.90
Amritsar	40.9	46.83	28.7	34.40	35.32	41.05
Kapurthala	42.6	50.77	28.0	38.27	35.70	44.85
Jalandhar	48.3	55.18	33.4	42.46	41.30	49.18
Hoshiarpur	50.2	58.24	30.5	41.19	40.88	50.09
Rupnagar	45.9	55.94	27.2	38.94	37.24	48.08
Ludhiana	48.7	56.15	35.4	44.15	42.63	50.60
Ferozepur	34.3	45.46	19.4	24.17	27.36	32.29
Faridkot	34.4	39.49	21.0	26.87	28.20	33.58
Bhatinda	29.0	34.14	14.6	20.29	22.38	27.72
Sangrur	30.3	35.56	17.0	22.68	24.23	29.60
Patiala	37.9	46.27	23.8	33.70	31.46	40.45
Punjab	*40.4*	*47.16*	*25.9*	*33.69*	*33.67*	*40.86*
SD	6.92	8.12	6.17	7.56	6.46	7.91
$\overline{X}$	40.33	47.36	25.43	33.84	33.41	40.92
CV (per cent)	17.17	17.13	24.26	22.35	19.34	19.33

Source: Government of Punjab, *Statistical Abstract of Punjab,* relevant issues.

trict disparities has left broadly unaffected its stock components (literacy rate). The special drive aimed at favouring education of female population, particularly in educationally backward districts, appeared to be bearing fruit.

III. Universalisation of primary education is a prerequisite of development process. However, accelerated development depends more on specialisation. Acquisition of specialised knowledge assumes, in turn, the setting up of specialised institutions of higher learnings. From this perspective, educational institutions may be clubbed as primary schools, middle schools, high/higher secondary schools, colleges and university departments. As we proceed on higher ladder in educational hierarchy, more and more specialisations in subjects taught gets introduced. In turn, this involves additional number of teachers for imparting skills, building structures for housing the classes, library and lab facilities, etc. In other words, cost of education tends to increase as we move in the higher ladder of educational hierarchy. Given the limited supply of resources to the economy, fewer and fewer resources are likely to be available for setting up of higher learning institutions. In other words, we would expect that the number of educational institutions decrease as we move from lower to higher level in educational hierarchy of institutions. Also that inter-regional disparities at higher level would tend to increase.

From the students perspective, acquisition of higher education involves, apart from direct costs, foregoing earnings during the period of education. The capacity of the student to forego his earnings depends primarily on the stay in capacity of the family. In an economy where income distribution is highly skewed, the majority of the families belonging to lower income strata will not be able to afford the loss of its family members during their pursuit of higher education.[2] Hence, these families are likely to withdraw their wards from the pursuit of high learnings. Consequently, adversely influencing the demand for higher education. The operational import of this would be quite high rate of drop out at middle, secondary and higher levels.

The operational import of these two divergent forces is likely to be fall in the teacher-pupil ratio as we move from lower to higher educational standard. For earlier spelled out reasons we expect inter-regional disparities even in the case of these two verifiable hypotheses to increase with the upward movement in hierarchy of the educational institutions.

To empirically verify the validity of these quality related hypotheses, we have computed hierarchy-wise relationship. Given the limited number of universities (3), professional colleges (4 medical and 2 engineering), we have excluded them from the ambit of our study. The exclusion of these institutions is bound to have downward influence on our estimates of inter-district variation.

Table 3 gives the percentage of primary schools having middle and high/higher secondary facilities on the one hand and ratio on college to the high/higher secondary schools on the other. An examination of the table fails to straightaway lend support to our hypothesis. However, if we ignore the middle school layer, we do find that as we move in the hierarchy of educational institutions, the percentage weight tends to decrease. Also the inter-district disparities tend to increase (note the value of coefficient of variation).

The overtime change in the hierarchical relationship of educational institutions is interesting and revealing. During 1972 and 1986 period we find that the percentage of colleges (arts and science) to schools (high/higher secondary) tends to decrease from 10.6 per cent in 1972 to

Table 3 Hierarchy-wise educational relationship in Punjab during 1972, 1978 and 1986

District	Percentage of primary schools having						Ratio of colleges to high/ higher secondary schools		
	Middle school facility			High/higher secondary school facility					
	1972	1978	1986	1972	1978	1986	1972	1978	1986
Gurdaspur	10.5	8.6	8.2	13.7	9.3	12.1	7.3	9.2	7.0
Amritsar	10.1	8.9	8.6	12.9	12.2	15.4	8.8	7.0	5.5
Kapurthala	10.2	10.5	10.2	14.6	12.5	14.0	18.9	15.2	13.3
Jalandhar	10.4	11.6	9.9	14.8	14.6	18.5	12.0	8.9	6.9
Hoshiarpur	8.9	8.0	7.4	14.1	10.5	12.8	7.8	5.9	4.8
Rupnagar	10.0	7.5	6.5	11.1	10.2	12.7	5.1	4.7	5.8
Ludhiana	12.3	10.4	8.6	17.1	16.5	20.7	13.8	10.5	8.1
Ferozepur	14.5	10.7	9.6	12.7	8.7	11.2	11.8	7.4	5.6
Faridkot	—	11.9	10.1	—	18.3	22.4	—	7.3	6.1
Bhatinda	12.7	12.1	10.1	14.9	16.1	19.3	8.0	6.4	5.2
Sangrur	12.6	10.4	8.9	16.6	15.2	18.3	8.0	5.9	5.7
Patiala	8.8	9.0	8.1	11.0	10.6	12.9	11.3	7.1	5.8
Punjab	*11.1*	*9.8*	*8.8*	*13.7*	*12.6*	*15.6*	*10.6*	*7.8*	*6.4*
CV (per cent)	*15.43*	*14.78*	*12.78*	*13.42*	*23.50*	*22.94*	*35.72*	*33.49*	*32.81*

Source: Government of Punjab, *Statistical Abstract of Punjab*, relevant issues.

6.4 per cent in 1986. Similarly, their inter-district disparities of these relationship tend to get narrowed. The value of coefficient of variation has decreased from 35.72 per cent in 1972 to 32.81 per cent in 1986.

However, at the school level the hierarchical relationship is not so unambiguous. Whereas percentage of primary schools having middle schools facilities have tended to decrease over time from 11.1 per cent in 1972 to 8.8 per cent in 1986, those having high/higher secondary facilities have tended to increase (though erratically) from 13.7 per cent in 1972 to 15.6 per cent in 1986. This behaviour pattern suggests that fewer primary schools have been upgraded to middle schools level as compared to upgradation of middle school to high/higher secondary level, on the one hand, and setting up of more new high/higher secondary schools, on the other. This suggests that there is increasing demand for high/higher secondary schools in Punjab, particularly in rural areas. This is consistent with empirical studies which advocate that high school education helps in positively influencing the productivity of agriculture.[3] Interestingly, inter-district disparities at high/higher secondary level have tended to accentuate over time (the value of coefficient of variation registered an

Table 4 District-wise percentage of drop out students in Punjab from V to X class

District	1972 through 1977			1980 through 1985		
	M	F	T	M	F	T
Gurdaspur	69.71	77.88	73.19	66.02	72.87	69.14
Amritsar	69.73	74.96	72.03	72.04	77.86	74.68
Kapurthala	73.50	75.75	74.51	67.59	73.96	70.59
Jalandhar	66.80	73.13	69.54	63.30	66.31	64.70
Hoshiarpur	63.43	77.63	69.54	58.82	68.89	63.54
Rupnagar	65.18	75.55	69.41	59.26	71.54	65.12
Ludhiana	66.54	69.62	67.89	62.27	64.01	63.06
Ferozepur	87.13	90.77	88.65	77.89	84.44	80.73
Faridkot	76.16	78.25	77.04	78.59	80.16	79.27
Bhatinda	81.56	85.36	83.04	77.01	82.32	79.30
Sangrur	72.96	79.63	75.55	75.66	82.84	78.77
Patiala	73.83	78.64	75.37	73.21	79.85	76.19
Punjab	*70.38*	*76.67*	*73.04*	*70.02*	*75.40*	*72.44*
CV (per cent)	*9.21*	*6.76*	*7.81*	*10.14*	*8.66*	*9.09*

Source: Government of Punjab, *Statistical Abstract of Punjab*, relevant issues.

increase from 13.42 per cent in 1972 to 22.94 per cent in 1986). These have decreased at the middle school level.

In view of the limitations of the published data, rest of our analysis is confined to school level education. In consonance with our hypothesis, very few students continue their education up to matric level. In fact, the drop out rate (Table 4) is as high as 73.04 per cent in first phase of our study (1972-1977) and 72.44 per cent in the second phase of our study (1980-85). There are substantial inter-district variations in drop out rate. It is as high as 88.65 per cent in Ferozepur district. Across sex, this drop out rate is higher in case of female, it is as high as 90.77 per cent again in Ferozepur district. Generally, drop out rate has tended to decrease irrespective of the sex. This is, probably, in response to upgradation of high school facilities and increase in income.

Interestingly, inter-district disparities have tended to accentuate over time irrespective of the sex (see the value of coefficient of variation from Table 4). This accentuation in inter-district disparities may be attributable to lagged response to additional facilities.

Table 5 gives the district-wise teacher-pupil ratio in schools in Punjab. As we move from primary to middle to high/higher secondary level, we find teacher-pupil ratio decreases irrespective of the time period considered. This behaviour is in response to divergently moving set of forces. To cater to specialised papers taught at middle standard, more so, at high/higher secondary level, the demand for teachers increases as we move from primary to high/higher secondary schools. In contrast, the parents capacity to spare their children over number of years for education without supplementing family income, discourages the demand for schooling at middle more so at high school level (as a consequence of this fact, we earlier found high drop out rate). It is these divergent sets of forces which explain fall in the teacher-pupil ratio.

Over time teacher-pupil ratio has tended to improve at primary and middle level. It has tended to deteriorate at secondary level. This suggests that government has started catering to the need of primary and middle schools but still these schools continue to be over-populated vis-a-vis teacher population. Since the base of the students is built at the primary or middle level, this ratio needs to be further improved. However, when doing so secondary school should not be starved of teachers as appeared to the happening.

No consistent pattern in inter-district disparities between different layers of education and over time is discernible (note last row of Table 5).

Table 5 District-wise teacher-pupil ratios in schools in Punjab

District	1971 through 1973			1977 through 1979			1985 through 1987		
	I to V	VI to VIII	IX to XI	I to V	VI to VIII	IX to XI	I to V	VI to VIII	IX to XI
Gurdaspur	47	38	22	38	35	22	36	27	24
Amritsar	42	32	19	39	38	19	40	21	20
Kapurthala	44	30	15	39	24	22	34	19	19
Jalandhar	45	43	22	38	29	21	37	23	22
Hoshiarpur	42	38	18	35	29	22	33	20	22
Rupnagar	42	29	18	35	25	21	32	19	23
Ludhiana	40	39	18	37	28	22	37	22	24
Ferozepur	45	28	17	47	26	21	45	20	21
Faridkot	46	47	17	43	28	19	48	18	16
Bhatinda	48	29	14	55	24	19	43	17	18
Sangrur	40	23	17	48	27	19	40	16	17
Patiala	37	27	17	46	25	20	39	20	20
Punjab	*44*	*32*	*18*	*41*	*27*	*20*	*39*	*21*	*21*
CV (per cent)	*7.19*	*20.72*	*12.71*	*14.18*	*10.60*	*6.10*	*12.05*	*13.85*	*12.36*

Source: Government of Punjab, *Statistical Abstract of Punjab,* relevant issues.

To be precise no clear picture in terms of quality of educational inter-district differentials emerges, although there are indications to the effect that these have tended to deteriorate at the secondary level.

IV. *Policy Implications:* The import of the preceding analysis is that four decades of fast development has failed to achieve the universalisation of primary education even at the margin. Our crude estimates reveal that only three-fifths of the children of school going age group attend the schools. However, to cater to demand for secondary school education a large number of primary and middle schools have been either upgraded or new secondary schools set up. Consequently, it has adversely influenced the relative importance of primary schools, although these continue to account for three-fourths of the school population.

The planned educational development strategy has been partially successful in reducing regional educational inequalities. As far as laying down of infrastructure is concerned, it has been successful. However, it has not been that fortunate to make use of these infrastructure facilities. Consequently, we find inter-district variations in the number of schools have diminished but the inter-district school enrolment variations have failed to respond and decrease. Not only enrolment rate has failed to register substantial gain, the student school retention rate has been very low. Put alternatively, three-fourths of the students have been dropping out without completing their secondary school education at one or other stage. Across sex, drop out rate is higher in case of females. In fact, it was as high as 90.77 per cent in Ferozepur district. In addition, and unfortunately, the inter-district disparities in the drop out rate have tended to accentuate over time. This is an issue which calls for serious pondering on the part of education planners.

Similarly, female literacy rate continues to be much lower than the male literacy rate although both have registered substantial gains. Nevertheless, inter-district disparities in female literacy rate has declined over time. In terms of educational infrastructure at different educational layers across district, some interesting developments have been observed. For instance, at the school stage, the percentage of primary schools having middle school facilities has tended to narrow down and those having high/higher secondary school facilities has tended to sharpen. However, the inter-district disparities in colleges as approximated by percentage of colleges to schools have been to be narrowing down. In other words, there appears to be a clear emphasis on building the post-primary but up to middle and post-school's infrastructure across districts, probably under political pressure. The relative neglect of secondary school infrastructure is another issue that should demand serious concern of educational planners.

NOTES

1. In 1981, school going population was 50,95,497 and students enrolment was 30,12,418.
2. See for example, Jagdish Bhagwati, "Education, class structure and income inequality", *World Development I,* No. 5(1973).
3. See for instance Baldev Singh, "Impact of education on farm production", *Economic and Political Weekly,* Review of Agriculture, September 1974.

EIGHTEEN

Planning Strategies for Removal of Disparities in Educational Development in Rajasthan

Lalit K. Panwar and S.S. Vyas

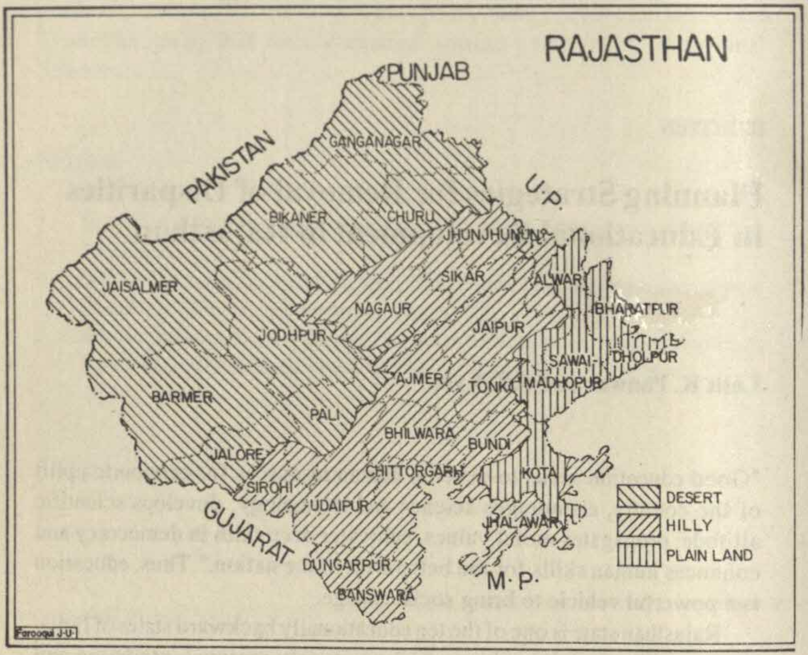
"Good education seeks to develop human resources for economic uplift of the country, encourages science and technology, develops scientific attitude, propagates moral values, cultivates deep faith in democracy and enhances human skills for the betterment of the nation." Thus, education is a powerful vehicle to bring social change.

Rajasthan state is one of the ten educationally backward states of India. We have inherited disparities which are mainly regional, sex based and caste based. These disparities exist due to social and cultural factors that hamper the educational development of Scheduled Caste (SC), Scheduled Tribes (ST), minorities and women, specially in rural areas.

In Rajasthan famine and droughts have become recurrent features. In a decade on an average 6 to 7 years, the state faces drought. Besides, it is a vast desert land and a long farflung range of hilly and rocky areas which obstruct educational expansion at the desired pace. The topological map of Rajasthan (Fig. 1) reveals that the state is full of desert, mountains and hilly areas.

The state is facing a great challenge in the field of education of girls, SC/ST, education for minorities and handicapped.

Prevailing old traditional social customs, orthodoxical and conservative outlook prevent the weaker and backward sections of the society to get easy access to education. In the past in a district like Jaisalmer, girls were killed soon after their birth, before they could see the first ray of the Sun. The limited financial resources do not permit the state government to provide specific and seperate educational facilities for girls, handicapped and minority groups. As a result "Universal enrolment" "Univer-



Fig· I

sal retention" and "Universal attainment" could not get concrete shape, despite strenuous efforts made by the state government in the last seven successive five year plans. There is mismatch between provision of input and their utilisation.

The problems of tribals are specific and typical. They want to live in isolation. High rate of their population growth, small size of holdings, low rate of literacy, inadequate infrastructure, high rate of infant mortality, hilly-terrain and exploitation by landlords, all these result in their educational backwardness.

In the state the child labour is involved in grazing cattle, collecting fodder and fuel or in carrying drinking water from farflung places in rural areas. Moreover the girls stay at home to look after the siblings.

Consequently special and effective strategies are needed to be evolved for educational development of girls, SC/STs, handicapped and minority groups and other backward classes.

Removal of disparities means providing all the people specially the deprived ones, equal opportunities for their development. Educational development is possible only if pace of economic development is accelerated. Hence, there is a dire need of finding out resources for educational development.

For the removal of disparities resource allocation for buildings and for training the teachers, is a must, besides the use of media such as TV and radio, etc. In inaccessible areas, for mass education and adult literacy TV programmes should be made. For mass literacy, open schools and open universities may be very useful as they have proved useful in France and China. Mobile schools should be opened for shifting and migrating population.

This paper attempts to analyse the following:

the prevailing disparities in educational sector;
thrust area of NPE and its POA for the removal of disparities;
efforts made by the state government to remove the imbalances; and
future strategies for removal of disparities.

The educational scenario of the state reveals that the imbalances still exist in rate of literacy, teacher-pupil (TP) ratio, providing educational and building facilities, opening of schools, etc.

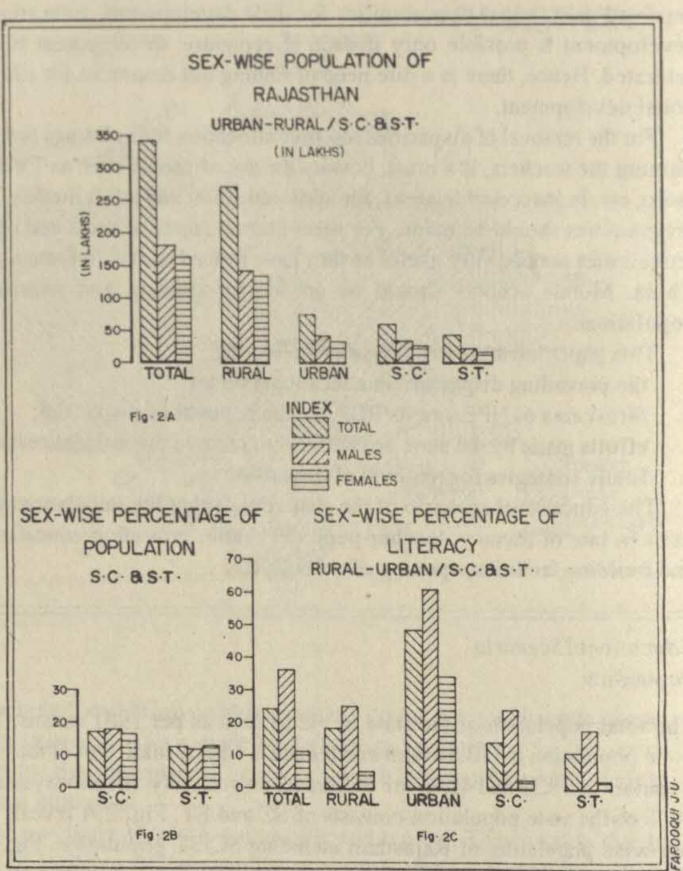
Educational Scenario

Population

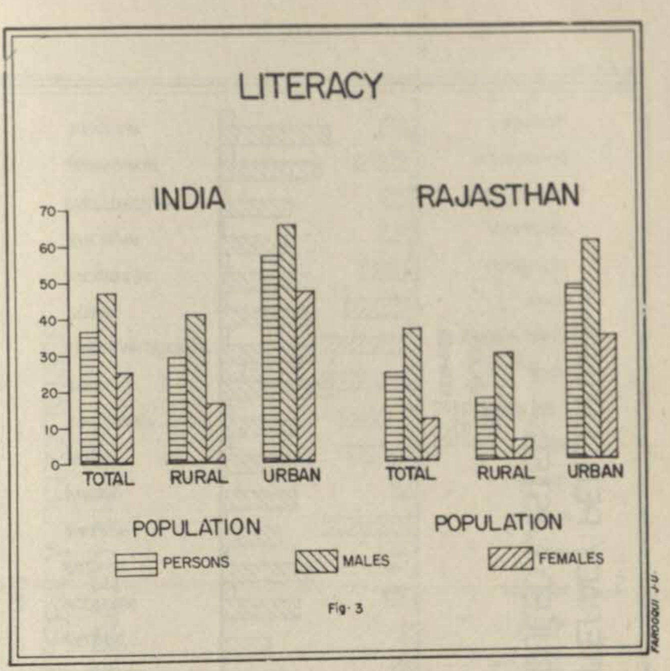
The total population of the state is 342.61 lakh as per 1981 census. The male population is 178.54 lakh and female is 164.07 lakh. Out of the total population, 58.39 and 41.83 are SC and ST respectively. In this way nearly 30% of the state population consists of SC and ST. Fig. 2 A reveals the sex-wise population of Rajasthan including SC/ST population. Fig. 2B shows the sex-wise percentage of population of SC/ST as compared to the total population. This shows sex based and caste based disparity is conspicuous in the state.

Literacy

The literacy rate of India is 36.23% whereas the literacy rate of the state is 24.38% only. Out of this the male literacy is 36.30% and that of female is 11.42% only. This indicates that in female education, the state is lagging behind. Fig. 3 reveals the level of literacy of the state as compared to the national level. This shows that the state is lagging far behind in female literacy specially in rural areas.



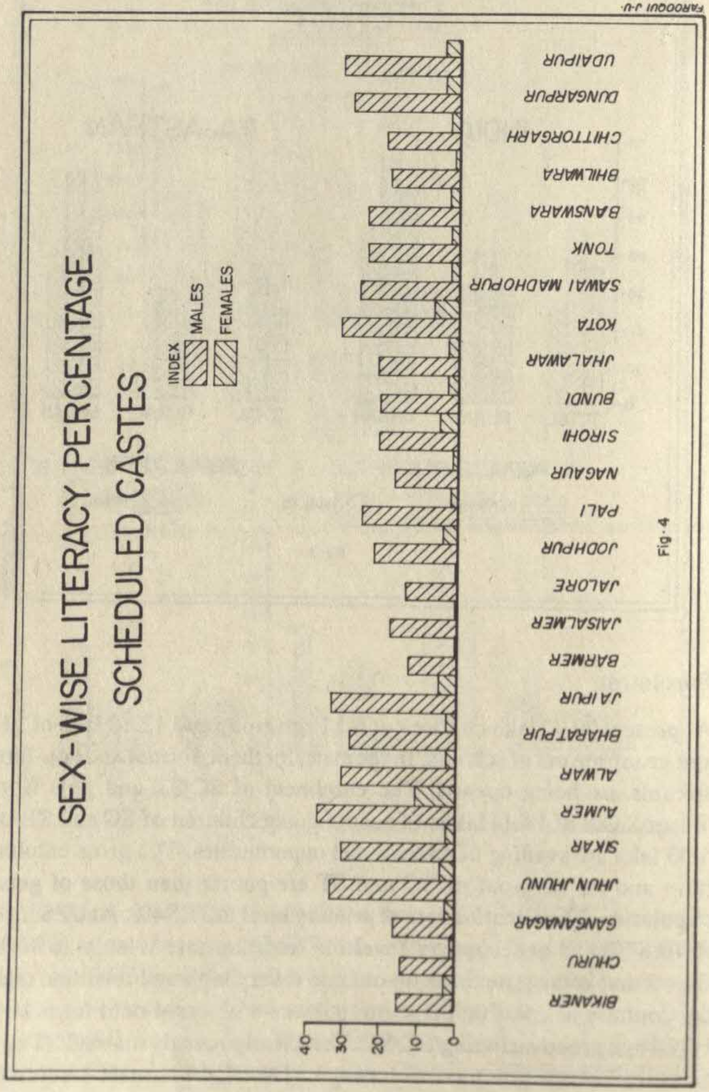
The literacy of SCs is 14.04% and that of STs is 10.27%. Out of this total, the female literacy is 2.67% and 1.20% for SC and ST respecitvely. This also indicates that SC/ST girls do not have an easy access to education. The female literacy of ST girls in Barmer, Jaisalmer, Jalore, Nagaur and Churu is less than 1.00%. Similarly, in Jalore, Barmer, Jaisalmer, Pali, Sirohi, Tonk, Bhilwara, Chittor and Udaipur, the literacy rate of SC females is less than 1.00%. Figs. 2C, 4 and 5 show the sex-wise percentage of literacy in rural and urban areas for SC/ST alongwith the district wise literacy percentage of SC/ST.



Fig· 3

Enrolment

At present 20.92 lakh children of 6-11 age group and 13.12 lakh of 11-14 age group are out of schools. In the state, for them, formal and non-formal streams are being opened. The enrolment of SC/ST and girls is very meagre. Out of 14.44 lakhs of school going children of SC and ST, only 6.03 lakh are availing of educational opportunities. The gross enrolment ratio and the drop-out of SC and ST are poorer than those of general population. The retention rate at primary level is 31.54%. At UPS level it is 70.87% and at secondary level the retention rate is only 25%. This shows that in the state the drop out rate is very high and retention rate on the contrary is low. Fig. 6B shows the sex-wise enrolment for 6-11 and 11-14 age group including SC/ST. This clearly reveals that SC/ST enrolment in 6-14 age group is very meagre. The SC/ST female enrolment is negligible. The retention rate as shown in Fig. 7A reveals that in 6-14 age group hardly 25% students get through the secondary examination, as such the drop out rate at secondary level is very high.


SEX-WISE LITERACY PERCENTAGE
SCHEDULED CASTES
INDEX
▨ MALES
▧ FEMALES
BIKANER
CHURU
GANGANAGAR
JHUNJHUNU
SIKAR
AJMER
ALWAR
BHARATPUR
JAIPUR
BARMER
JAISALMER
JALORE
JODHPUR
PALI
NAGAUR
SIROHI
BUNDI
JHALAWAR
KOTA
SAWAI MADHOPUR
TONK
BANSWARA
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UDAIPUR
0
10
20
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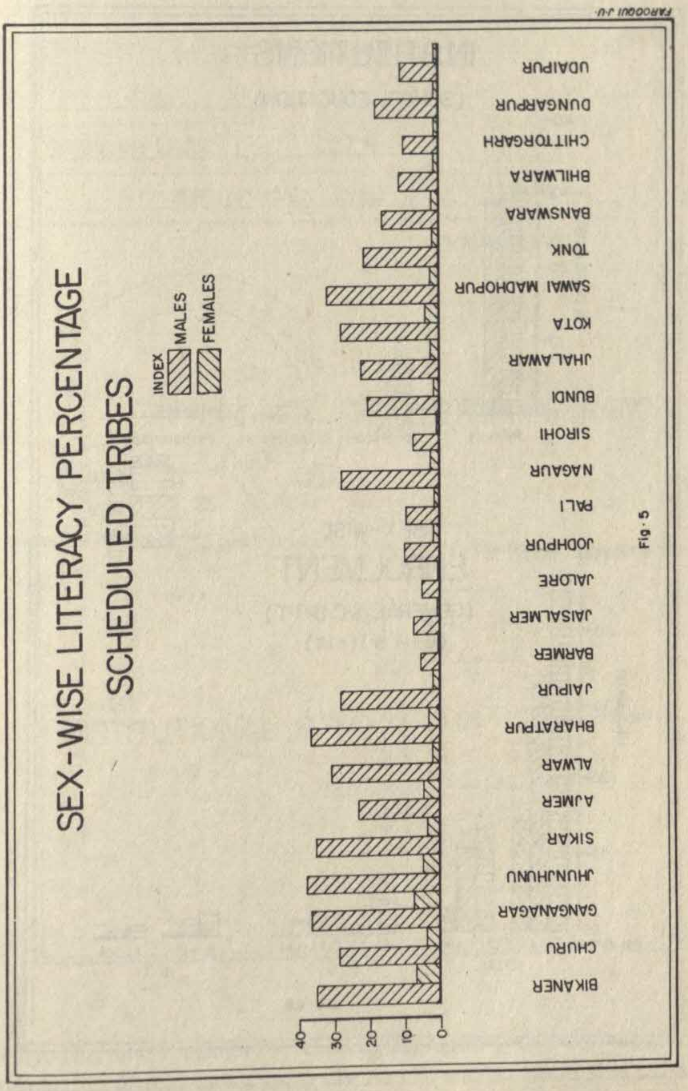
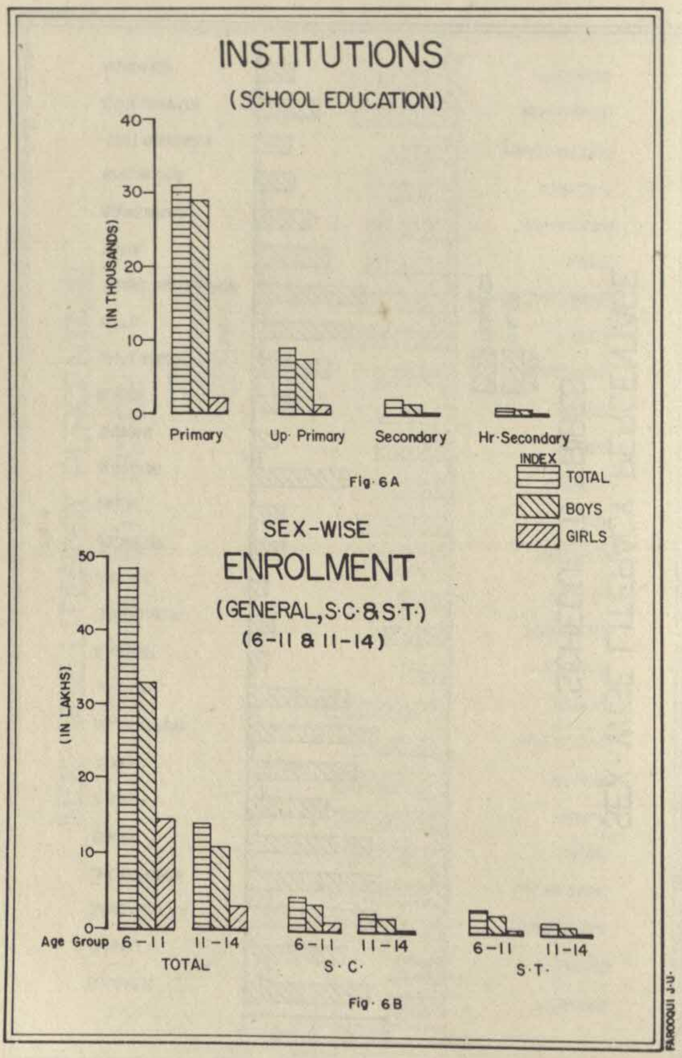
40
FAROOQUI J-U.

Fig·4



SEX-WISE LITERACY PERCENTAGE
SCHEDULED TRIBES

Fig · 5

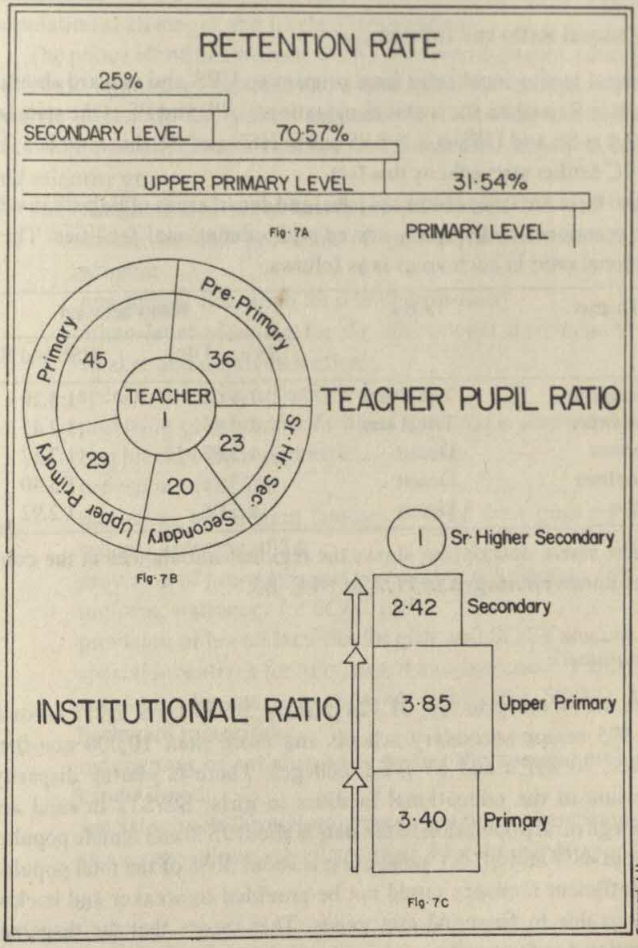


Fig· 6A

Fig· 6B

Teacher-Pupil Ratio

The teacher-pupil ratio at the pre-primary, primary, upper primary, secondary and senior secondary level is 1:36, 1:45, 1:29, 1:20 and 1:23 respec-



tively. This ratio at primary level is slightly higher, otherwise the ratio is normal. But there is an alarming disparity in teacher-pupil ratio in hilly, desert and educationally backward districts like Banswara, Barmer and Jalore where the TP ratio is 1:53.28; 1:56.02 and 1:59.09 respectively. Similarly, the allocation of teachers is not according to number and size of the sections and as such there is wide disparity in this regard. Fig. 7B reveals the picture of TP ratio in the state.

Institutional Ratio and Imbalances

The ideal institutional ratio from primary to UPS and onward should be 3:1 but in Rajasthan the institutional ratio of UPS and PS at the state level is 1:3.4 at SS and UPS it is 1:3.85 and at HSS and SS this ratio is 1:2.42. Fig. 7C further strengthens this fact.

But there are large chunks of tribal and desert areas of Rajasthan which have remained inadequately served with educational facilities. The institutional ratio in such areas is as follows:

District	Area	Ratio between	
		SS and UPS	HSS and SS
1. Dungarpur	Tribal area	1:4.04	1:3.29
2. Banswara	Tribal area	1:4.65	1:2.45
3. Barmer	Desert	1:5.83	1:2.62
4. Jaisalmer	Desert	1:3.65	1:3.40
5. Jalore	Desert	1:5.06	1:2.92

The above description shows the regional imbalances in the context of the norms envisaged in POA of NPE '86.

Institutions

There are 34 pre-primary, 31,124 primary, 8,955 UPS, 2,171 secondary and 805 senior secondary schools and more than 10,000 non-formal centres, 40 STCs and 27 B.Ed. colleges. There is glaring disparity in provision of the educational facilities to girls, SC/STs in rural areas. Although rural population of the state is about 75% and female population is about 48% and SC/ST population is about 30% of the total population but sufficient facilities could not be provided to weaker and backward sections due to financial constraints. This shows that the dispersal of educational infrastructure is not homogeneous in rural areas and for female and SC/ST population. In the same way, there is a vast disparity in providing building, hostel and other educational infrastructure to rural, tribal, desert and hilly areas.

Thrust Area of NPE and POA

The national policy on education lays special emphasis on the removal of disparities in the quality and coverage of education and equalisation of educational opportunities for SC/ST, women, handicapped and minority population at all stages and levels of education.

The policy identifies women, SC/ST, backward classes, educationally backward minorities, disabled and adults as special groups and needing priority attention. The policy suggests the following strategies to be evolved for the educational upliftment of the weaker, deprived, backward and minority groups.

elimination of sexist bias in case of women;
incentives and provision of special facilities for SC/ST & women;
non-formal education for school drop-outs;
micro-level planning for the educational development of the weaker and deprived sections;
special attention to backward areas;
provision of minimum facilities in all the schools under operation blackboard programme;
provision of ECCE;
incentives to indigent families to send their girls regularly to schools upto age of 14;
provision of pre-matric and post-matric scholarship, free books, uniform, stationary for SC/ST girls;
provision of hostel facilities for girls and SC/ST students;
special incentives for hilly, desert and inaccessible areas;
assistance for starting coaching classes for SC/STs and for backward minorities;
redesigning of syllabus so as to suit the specific problems of handicapped;
special schools through voluntary agencies for handicapped; and an average of one school per district for the handicapped.

Efforts Made by the State Government to Remove Imbalances

Despite financial contraints the state government has been very particular to achieve the target of UEE. Similarly, the government has evolved strategies to boost up the educational standard of SC/ST, women, handicapped and minority population.

For the removal of regional disparities, the following strategies as envisaged in NPE '86 and recommended in its POA have been implemented in the state:

1. To achieve the targets of UEE, microplanning exercises have been undertaken at the grass root level so as to increase enrolment, sustain retention and decrease drop-out rate. Meanwhile, the Education Department has covered 4 border districts and one educationally backward district for preparing block and district level plans based on microplanning.
2. School mapping exercises have been taken up. By this time, school mapping work in fourteen districts has been completed and in other districts it is in progress.
3. Schooling facilities are being provided at a distance of 2 km at primary level and 5 km at UPS level. For hilly deserted and inaccessible areas this distance is minimised and non-formal centres have been opened.
4. Physical facilities are provided under operation blackboard scheme. This scheme will cover all the blocks by the end of the VII plan. In 87-88 and 88-89 a sum of Rs. 1317.13 lakh has been sanctioned by the Central government for the construction of class-rooms, laboratories, teacher quarters and toilets under BADP and operation black-board schemes, out of which Rs. 672.60 lakh has been utilised and the remaining amount is being utilised.
5. Building facilities are being provided under BADP scheme. All the 13 blocks of the four districts of border area will be covered by 1990.
6. For universal enrolment, universal retention and for a substantial improvement in the quality of education, incentive schemes have been launched and mass programmes for teachers orientation have been started. Incentives schemes like rural talent scholarship, sanskrit scholarship, provision for reimbursement of tuition fee and special incentive scheme for SC/ST school-going population are in existence in the state.
7. By the end of the VII plan 7400 non-formal centres for boys and 3000 for girls will be in existence. Similarly Shiksha Karmi Yojna will give better results for strengthening the retention.

Thus an array of meticulously formulated strategies based on micro-planning and applied at grass root level will help a lot to achieve the targets of NPE in the prescribed time schedule. New schools will be opened on priority basis to cater to the requirements of difficult target groups such as girls, SC, ST, minorities, handicapped, slums in urban areas, etc. Under "Integrated scheme for handicapped" educational facility is provided to the handicapped students in 16 UPS and 6 Sec./Hr. Sec. schools in the state.

For minorities, educational and training facilities in schools and training institutions are provided at all stages and at all the levels as to ensure equal opportunities for them.

Future Strategies for Removal of Disparities

Provision of hostel facilities for SC/ST students, Ashram schools in tribal areas and ECCE Centres in rural areas will boost up enrolment and retention leading to UEE.
Institutions from Pr. to Sr. Hr. Sec. level will be opened in desert, hilly and tribal areas on priority basis for women and SC/ST.
A network of NPE Centres will be planned for the entire state to cater to the educational needs of the non-school going children.
Establishment of DIET and Navodaya Vidyalaya in all the districts by 1990 will be helpful for teachers orientation and rural talented students respectively.
Community participation and cooperation of voluntary agencies will be sought and for this VEC will be strengthened.
Special pre-primary centres will be opened and Children Play Centres will be attached to UPS (Girls) in rural areas.
Hostel facilities for girls at district and range level will be provided.
Seperate cadre for teachers working in rural areas will be evolved and special in-centre facilities will be provided to them. Such teachers will also get early promotion prospects.
Attendance scholarship, free books, 2 uniforms, stationery to girls and SC/ST will be provided.
Provision of mid-day meal will be made.
Incentive to teachers for maximum enrolment and retention.
Mobile schools and peripatetic teachers will be provided in inaccessible areas.
More schools for handicapped will be opened.
The rate of pre-matric and post-matric scholarship will be increased for SC/ST students.
More hostels for scavengers SC/ST students specially for girls will be opened.
Facilities for opening more special units for the training of SC/ST will be provided.
Book bank and coaching class facilities to SC/ST students will be provided.
Effective monitoring and evaluation scheme will be chalked-out.
Use of media for mass education and adult literacy programme will be

made.

Since the state has inherited disparities due to social and cultural taboos and because of financial constraints and limited economic sources, it is difficult to eliminate the disparities in toto but the same can be minimised to a greater extent, by adopting above mentioned operational modalities and strategies.

It is hoped that the successful implementation of these strategies will help not only in removing regional imbalances but will also prove fruitful in the educational development of the state in general and of the deprived sections of the society.

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NINETEEN

Regional Disparities in Educational Development in Bihar: An Enquiry into Inequities in the Distribution of Educational Infrastructure and Strategies for Their Resolution

Sachidanand Sinha

The Problem

Regional disparities in the levels of development is a cumulative expression in space of those social, economic and historical conditions in a social system which is, in form and content, discriminatory and therefore selective and biased in favour of those elements, which by virtue of a differentiated socio-economic and political power-structure allow unequal degrees or possibilities of access to opportunities essential for a dignified existence. The system draws its sustenance from such arrangements which allows for an accumulation of essential characteristics of development in a few hands and select locations or regions. The history of world has established this in more than one way. Truly, if differentiated development is the predominant order, then education being a subset of social system must acquire all the essential characteristics of selection and differentiation.

Differentiation alone does not create disparities unless it is supplemented by the processes of selection. On the contrary, differentiation may lead to integrated or comprehensive development if all elements in a system is assured more or less the same degree of access to social and economic opportunities. The history of national policy on education since its colonial variant of 'downward-filtration' to the 'Navodaya Vidyalayas' of 1986 (NPE, 1986) has been a continuous attempt at accentuating this process of differentiation and selection in the field of educational development of India.

A large volume of literature has appeared on different dimensions of regional or spatial disparities in educational development in India (Raza, Ahmad and Nuna, 1984; Panchamukhi, 1969; Tilak, 1978, 1980, 1981, 1983; Sinha, 1988). The issue has been more or less clinched insofar as the broad patterns of geographical inequalities in educational development and their socio-economic correlates are concerned. Naik (1965) rightly captures the profile of educational disparities in India:

> ...there remain appreciable inequality of educational opportunity at several levels and in several sectors. From the national point of view there will be wide gaps between advanced states and backward states. At the state level, we find great difference of achievement between certain advanced districts and the backward districts. Even within the same tehsil, not all villages are equally advanced. There are still large differences between urban and rural areas. From the social point of view, there is great inequality of educational development between boys and girls and also between the advanced communities on the one hand and the scheduled communities on the other.

Thus, regional or spatial disparities would tend to reflect inter-group or inter-community disparities and gender differentiation in education. In other words, the general locational or regional backwardness in educational development may adversely affect certain communities or groups more than certain others, and significantly their female component.

In this study, statistical representation of regional disparities has been deliberately avoided as it would only lead to duplication. Instead, emphasis has been laid on the diagnosis of certain specific problems associated with regional disparities, such as the non-availability of schooling facilities in the rural areas where illiteracy is rampant.

This exercise is, therefore, directed towards understanding the importance of educational facilities, as a necessary not a sufficient condition, in the course of educational development in rural Bihar. An attempt has also been made towards evolving a strategy so that educational inequities could be reduced or fully eliminated. In order to realise these objectives a village level case study of Chapra Development Block (Saran) has been carried out for reference year 1981 with the help of simple techniques of data manipulation. This has been necessitated for the simple reason that studies on village level patterns of educational disparities have been few.

One of the most important problems in the course of India's educational development has been the failure to implement universal enrolment at the elementary stages of school education. Then, the problem of retention of those enrolled at the initial stage, in the successive higher stages of education has also been worrying the educational planners. These problems acquire very high proportions in the context of rural areas, backward or the scheduled communities and the female populations. At this stage one may suggest that universal enrolment can never be achieved in the absence of schooling infrastructure of elementary or relevant stages of education. Similarly, retaining children in successively higher classes may again prove difficult if relevant sections or schools are not there. This is not to suggest that children drop-out simply because of the non-availability of schooling facilities. But, a child may be deprived of that basic opportunity of initiation into the formal means of education if the elementary school is beyond his physical reach. While the problem of retention is an important one, that of initiation is of paramount significance. Who is to be retained? The question of retaining those who never joined the school does not arise. One may also bear in mind that availability of schools provide opportunities not only to those who are willing to join them, but also to those who may be motivated to join education later. The absence of schooling facility seals the fate of all but a few for whom friction of space or distance and socio-economic conditions pose no problem. One may, therefore, suggest that under normal circumstances, the bearings of schooling facilities on the educability of an individual would be of basic importance.

The Spatial Pattern

The National Policy on Education (hereafter NPE) 1986 observes that despite tremendous expansion in educational facilities, the overall situation reveals a disturbing increase in sectional disparity (NPE, 1986a:7). It also notes that "more than 90 per cent of the rural habitations now have schooling facilities within a radius of one kilometre. At the upper end of the pyramid, also, there has been a sizeable augmentation of educational facilities (ibid.:2). Further, it states that although over 1,90,000 habitations (according to Fourth All India Educational Survey: 1978-79) were without schooling facilities, attempts would be made within the 7th Plan to provide a primary school in all habitations, especially those with a population of 300 persons. As a policy recommendation, it states that every habitation which can potentially have 50 children in the primary school should be provided one and an upper primary school opened on primary school catchment basis (NPE, 1986b:12).

The situation obtaining in Bihar suggests that according to the Fourth

All India Educational Survey less than 78 per cent of rural population were served by primary schools within their habitations. The corresponding figures for middle and secondary schools were 23.14 and 9.00 per cent points respectively. One also observes that each primary school had a theoretical catchment radius of over 3.00 km. It was 21.40 km for middle schools and 66.90 km for secondary schools (Sinha, 1988:155-209). This aggregate level profile of educational facilities suggests that there are vast areas and a large population who by virtue of the locational pattern of schools have limited access to them. A block level statistics as in Table I suggests that out of 88 revenue villages of Chapra Sadar Block as many as 31 villages had no school at all. Although there were nearly 67 primary schools in the block, 39 of them were solitary educational facility in as many villages. For 88 villages there were only 5 high schools located in villages where primary and middle schools also existed. Inequality in the distribution of educational facilities is self-explanatory.

Table I Chapra block: profile of educational facilities

1.	Revenue villages	118
2.	Uninhabited villages	18
3.	Revenue villages wholly or partly merged with Chapra city	12
4.	Villages without any school	31
5.	Villages with primary schools only	39
6.	Villages with more than one primary school	9
7.	Villages with primary and middle schools	13
8.	Villages with primary, middle and high schools	5

Source: Census of India, 1981.

In terms of availability of schools in Bihar, Sinha (1988) observes that there was one primary school for every population of 162 persons in the age group of 6-11 years. The comparable figure per middle and secondary school works out to be 430 and 1,879 persons respectively. Although distribution of village population for different age groups was not available, a crude population-school ratio, taking all ages into consideration suggests that in Chapra block for a population of 1,641 there was one primary school only; every middle school had to cater to nearly 8,500 persons and each high school had nearly 22,000 population to cover. The inter-connectivity between the three stages of education is an added dimension of the nature of inter-stage disparity along with spatial disparity in the availability of educational facilities. For example, there was one middle school for every 5 primary schools; and for every 13 primary schools there was one high school. The middle-high school ratio worked out to be 2.6:1. Disparities in the provision of educational infrastructure is, therefore, well founded.

As suggested earlier in this paper, that educability may be positively affected by the availability of facilities. This observation sounds too obvious. One observes from Table II and Table III that it is not quite so. The reason being that availability of educational facility is a necessary condition, not a sufficient one. And, therefore while it may positively affect male literacy significantly than the female literacy. It is clear from these tables that out of 18 villages where female literacy was below 1.00 per cent, 7 villages had no schools and 6 had primary sections only. One may also observe that the mean literacy rates for total population as well as the female population was lowest in villages where no school was available, although the difference is not large when a comparison is made with the mean literacy of villages with primary school facilities. The distribution of literacy rates also indicate lack of consistency in case of villages without schools. In other words the difference between lowest value and highest value works out to be large enough. On further examination it was found that the villages in this category with high literacy rates had easy proximity to Chapra city. The tables also suggest that female literacy rates increase with additional schooling facility. For example, two primary schools each in five villages have a mean female literacy of 14.45 per cent and general literacy rate of 31.24 per cent. The villages where all three stages of education were available total literacy rates in general and female literacy rates in particular are observed to be the highest. Although, there are exceptions as well.

It is also suggested that population size of a settlement plays an important role alongwith its position on the transport network in determining which school of what stage be located where. In other words villages with large population would have greater possibilities of obtaining a school for itself than a small village and thus the latter by virtue of its population shall have to wait for such a facility. Table IV suggests that out of 28 villages with a size of population below 500 persons, 20 had no school, 7 had only primary sections and one was fortunate to have all the three stages of schools. The number of villages without a school comes down with increase in the size of population. One may also observe that literacy rates also tend to increase with the size of population. It indirectly suggests that with increase in the number and type of schooling facilities,

Table II Chapra block: literacy rates and distribution of schooling facilities in villages — 1981

Village literacy rates (%) (class-groups)	No. of villages	Mean general literacy rate (%)	Mean female literacy) rate (%	Distribution of villages by schooling facilities			
				No. of schools	Primary schools only	Primary & middle schools	Primary, Middle & high schools
0.00-5.00	5	7.70	0.22	4	0	0	1
5.00-10.00	7	16.36	0.90	2	5	0	0
10.00-20.00	31	29.82	3.16	9	17	5	0
20.00-30.00	20	39.50	8.50	8	8	3	1
30.00-50.00	22	54.64	16.91	7	8	5	2
50.00 and above	3	57.40	36.50	1	1	0	1
Chapra CD block	88	39.63	10.02	31	39	13	5

Source: Census of India, 1981

Table III Village literacy rates

	No of schools ($N = 31$)		Primary only ($N = 39$)		Primary (boys & girls) ($N = 5$)		Primary & middle ($N = 9$)		Primary, middle and high ($N = 5$)	
	Total	Female	Total	Female	Total	Female	Total	Female	Total	Female
Highest value	51.32	40.67	54.11	35.56	43.05	28.36	38.71	21.02	45.30	28.83
Lowest value	2.67	0.00	8.53	0.00	18.85	2.37	21.02	1.06	4.67	0.00
Mean	21.80	7.50	22.00	8.00	31.24	14.45	23.70	8.77	28.84	14.45

Source: Census of India, 1981

Table IV Population size of villages, literacy rates and distribution of schools, 1981

Village population size	No. of villages	Mean general literacy rates		Distribution of schools			
		Total	Female	No. schools	Primary only	Primary & middle	Primary, middle & high
1	2	3	4	5	6	7	8
< 20C	8	20.87	7.70	7	–	–	1
200-500	20	22.90	6.86	13	7	–	–
500-1000	27	21.38	7.31	11	14	1	1
1000-2000	16	23.74	10.25	1	12	2	1
2000-3000	10	25.42	10.21	1	5	3	1
3000 and more	8	28.94	12.60	–	1	6	1

Source: Census of India, 1981, Series, Bihar: Saran District Census Handbook.

literacy rates are positively affected. Sinha (1988) observes that villages where schooling facilities are available have higher levels of enrolment, significantly female enrolment and also of the scheduled communities. Such villages are also in a position to retain a higher number of boys and girls in schools than those villages where schooling facility is not available. Enrolment of girls in higher stages of school education, middle and secondary particularly is severely affected on account of non-availability of schools within the village or habitations (Sinha, 1980; Bhagwati, 1985). Sinha (1988) in his attempt to obtain the reasons for not joining schools and drop-outs for boys and girls separately observes that non-availability of schooling facility was one of the principle reasons. It was particularly the single most important reason for girls between 11-18 years of age.

The argument, it seems, is fairly well received now. The spatial pattern observed above vividly shows existing disparities in the distribution of schooling facilities at the micro level, where the main drama is being enacted.

The Strategies

The question one may ask at this stage is what should be the framework of a strategy towards its effective resolution so that schooling facilities are available to all, and also so that inter-stage inter-connectivity is strengthened. Should one resolve that every habitation, big or small, is provided with schools? This would be difficult to suggest in view of scarcity of resources. It has also been suggested by some observers of education that enlarging quantity of education would necessarily lead to reduction in the quality (Naik, 1975). This view has been contested by Sinha (1988). According to him, quality of education has no relationship with quantity. If this was so large, schooling facilities available in urban areas should have been poorer in quality of education in relation to low facility base of schooling in rural areas.

It is clear that universal enrolment and retention of pupils in successive higher stages of education cannot be obtained in the absence of universal supply of schooling infrastructure. It may also be noted that the present system of education in India allows for private and public enterprise to participate in the field of education. This has led to a situation whereby schools with qualitatively different facilities and standards, mostly in the private sector to mushroom in urban areas. As a consequence, while private and public schools cater to the urban educational needs, rural areas are virtually left to the public educational enterprise. It has also been suggested that the public and private sectors in education differ in terms of facilities and overall standards of education. The latter being favourably endowed because it caters to a small section of urban affluent and educated classes. This section is readily willing to pay any amount so that their wards receive the best of education available in the country. The result, therefore, is that there exists a wide gap between urban and rural areas in terms of sheer quantity of schooling facilities and within urban areas in terms of quality of education. For a better quality of education one has to pay more, and, therefore, affordability of urban population itself becomes the basis of differentiation and selection in the process of education. The end product of such a situation is that while a large section of urban and rural population is deprived to have access to a better quality of education, those who have access have to obtain that at a tremendous social, economic and even psychological cost. It is fairly well known that private schools draw their pupils from areas far and wide within the urban region. The catchment areas of such schools, therefore, have great correspondance with high-income group residential areas and they frequently cut across depending upon the choice of education, and performance of schools subjectively obtained by parents, and also availability of seats in schools in certain order of merit within themselves. On the other hand, government schools do not have large catchment areas and they generally cater to the neighbourhood population. Proximity to residence, therefore, is a major reason which determines the choice of school. Over all these, a huge private and public infrastructure of transportation is required to help children studying in private schools to negotiate the distance which is invariably very large between their homes and schools. The social cost obviously besides that privately incurred by individual parents is very high. Although these observations are, at best hypotheses, which are required to be properly investigated.

The strategy, therefore, proposed for discussion here, appears to be fairly competent in the resolution of all these problems; provided there is a political and bureaucratic will to carry it out. There is nothing new with this strategy. Its various elements are in operation in a large number of advanced countries of both ideological moorings — capitalist and socialist. This framework is based on the principle of what is popularly known as 'Neighbourhood Schooling'. If the principles of neighbourhood schools is made operational in India — in its urban and rural areas alike, it can answer most of the questions with which our educational planners are presently confronted with. Operational elements of neighbourhood schools are given below:

(a) Each school of various stages shall have its well-defined catchment.

(b) Population within the catchment is obliged to avail of this existing facility and in turn the school is obliged to admit a child compulsorily living within the catchment area.

(c) The size of the catchment area of a school in relation to its stage will be determined on the basis of easy access between home and school.

(d) Schools within the catchment zone are in complete knowledge of the size of the school going population in different age-stage categories.

(e) Schools and parents may form a committee on the school management in particular and educational system in general.

(f) Each catchment and school will form a necessary component of the National Educational System.

(g) The national educational system must respond to the manpower needs of the economy, therefore each school network within the catchment must carry it out.

(h) In rural areas, however, the demarcation of the catchments of school should be worked out after a detailed mapping of facilities, and type and density of settlements layout.

(i) Each catchment of schools should be a self-sufficient spatial unit, insofar as educational requirement of all stages and technical-vocational training are concerned.

(j) All elements mentioned above can only be successfully carried out under a legal framework of compulsory enrolment.

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TWENTY

Female Primary Education in West Bengal: Inter-District Variations and Policy Interventions in the Context of Universalisation of Primary Education

Jaba Guha

1. Introduction

The universalisation of elementary education (UEE) has always been an important objective of our development plans, in general and of our education policy, in particular. Successive target dates have been fixed and postponed. In the recent past, the Seventh Plan document stated, "Overriding priority will be given to realising universalisation of elementary education for children in the age group 6-14 years by 1990...". The National Policy on Education (NPE), 1986, also lays emphasis on this point, but in the light of recent experience, the target date for achieving UEE has been shifted to 1995.

One of the major stumbling blocks in the path of achieving UEE in our country is 'the woman's problem' — the problem of universalising elementary education among the female population. Notwithstanding the limited progress that has been achieved in this sphere in the urban areas, the overall picture is still dismal, specially in the rural scene. Education for women, from the very literacy stage, remains a distant dream for large sections of our population. In recognition of the shortfalls and importance of this problem, the NPE, 1986, states — "The removal of women's illiteracy and obstacles inhibiting their access to, and retention in, elementary education will receive overriding priority..."

Elementary education refers to education upto Class VIII. Universalisation of literacy and primary education (Class I to V), therefore, is the pillar on which UEE will stand. Our interest in this paper is in the problems connected with female primary education in West Bengal and in related policy alternatives in the context of universalisation of primary education (UPE). The analysis is carried out at the inter-district level. In Section 2, variations in the female-primary-education (FPE) scene in the different districts of West Bengal are studied. In Section 3, linkages are sought to be found between district-level performance in FPE and some socio-economic indicators of possible relevance. In Section 4, policy alternatives are discussed which may be useful in the context of universalisation of female primary education (UFPE), in particular, and of UPE in general.

2. Inter-district Variations in Primary Level Education

Primary education is from Class I to Class V. When we analyse the PE situation in a country like ours, which has a high level of illiteracy, it may be useful to consider not only those who have, or have not, completed primary level education but rather to view the problem as one of how many are receiving different levels of education upto the primary stage. A very important corner-stone in the path of primary education is literacy. So, our discussion relating to regional dimensions of the PE problem in West Bengal will begin with the literacy aspect.

Table 1 shows the sex-specific literacy rates, both rural and urban, for the 16 districts in West Bengal in 1981. The table also shows the ranking of the districts with reference to specific attributes like total literacy, total female literacy, urban female literacy, female literacy in the rural sector, and so on. For purposes of comparison, the same information, for 1971, has been given in Table 2.

During this ten-year period the percentage of literate females have increased in all districts, but no significant change is observed in the character of inter-district differences in female literacy rates (FLR). Calcutta, Haora, Hugli, 24 Parganas and Bardhaman occupied the first five ranks, while Maldah and Puruliya held the last two ranks, in both 1971 and 1981. There are minor interchanges in the intermediate ranks. With regard to female literacy in the rural sector, Haora and Hugli occupy the first two places; (Calcutta has no rural population) while West Dinajpur, Maldah and Puruliya occupy the last three. Once again, in the middle ranks, there are minor interchanges. In the urban-sector-female-literacy-rates position, some changes are observed as between 1971 and 1981. The last four positions are occupied by Bankura, Puruliya, Birbhum and Murshidabad in both years, but the exact ranks are not the same. Calcutta, of course, comes first. But Maldah, which was in the second position in

Table 1 Sex-specific literacy rates in West Bengal (per cent) 1981

Name of District	Whole District			Rural			Urban		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
1	2	3	4	5	6	7	8	9	10
1. Koch Behar	29.99 (11)	39.99 (12)	19.30 (12)	27.30 (12)	37.50 (11)	16.35 (11)	66.21 (2)	72.55 (2)	59.37 (2)
2. Jalpaiguri	29.88 (12)	38.48 (13)	20.44 (11)	25.07 (13)	34.00 (13)	15.32 (12)	59.22 (11)	65.36 (13)	42.29 (9)
3. Darjeeling	42.52 (7)	51.50 (6)	32.38 (6)	34.43 (8)	44.61 (8)	23.34 (8)	63.49 (4)	68.79 (6)	57.00 (3)
4. W. Dinajpur	26.92 (14)	36.13 (14)	17.08 (14)	22.40 (15)	31.91 (14)	12.42 (14)	62.53 (6)	69.10 (4)	55.17 (7)
5. Maldah	23.06 (16)	31.40 (16)	14.21 (15)	21.11 (16)	29.60 (16)	12.18 (15)	61.85 (7)	68.02 (8)	55.19 (6)
6. Murshidabad	24.97 (15)	32.35 (15)	17.20 (12)	22.52 (14)	29.92 (15)	14.81 (13)	48.84 (16)	56.19 (16)	41.25 (16)
7. Nadia	30.77 (9)	43.74 (10)	29.40 (8)	30.42 (10)	37.40 (12)	23.04 (9)	60.02 (9)	67.10 (11)	52.01 (10)
8. 24 Parganas	45.91 (4)	55.41 (4)	35.40 (4)	34.65 (7)	45.88 (6)	22.69 (6)	63.59 (3)	69.69 (3)	56.42 (4)
9. Calcutta	68.99 (1)	73.21 (1)	63.07 (1)	—	—	—	68.99 (1)	73.21 (1)	63.07 (1)
10. Haora	51.40 (2)	60.73 (2)	40.85 (2)	43.75 (2)	54.92 (2)	32.01 (3)	60.81 (8)	67.17 (10)	52.72 (8)
11. Hugli	48.80 (3)	57.89 (3)	38.79 (3)	42.85 (3)	52.93 (4)	32.14 (2)	62.99 (5)	69.05 (5)	56.07 (5)
12. Medinipur	42.84 (5)	55.32 (5)	29.73 (7)	41.29 (4)	54.09 (3)	27.91 (4)	59.48 (10)	68.09 (7)	49.90 (11)
13. Bankura	30.50 (10)	49.41 (8)	23.11 (10)	34.77 (6)	47.90 (5)	21.19 (10)	57.40 (13)	67.52 (9)	46.66 (13)
14. Puruliya	29.82 (13)	45.58 (9)	13.34 (16)	27.31 (11)	43.50 (9)	10.49 (16)	55.20 (14)	66.00 (12)	43.22 (14)
15. Bardhaman	42.84 (5)	50.92 (7)	33.82 (5)	36.07 (5)	44.82 (7)	27.81 (4)	57.48 (12)	64.52 (14)	48.87 (12)
16. Birbhum	33.80 (8)	43.03 (11)	24.21 (9)	32.02 (9)	41.52 (10)	22.68 (7)	50.76 (15)	59.30 (15)	41.48 (15)
17. West Bengal	40.88	50.49	30.33	32.97	43.36	22.01	62.81	68.99	55.26

Source: Census of India, 1981

Note: Figures within brackets show inter-district ranks

Table 2 Sex-specific literacy rates in West Bengal (percent) 1971

Name of District	Whole District			Rural			Urban		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
1	2	3	4	5	6	7	8	9	10
1. Koch Behar	21.92 (13)	31.08 (14)	11.93 (14)	19.23 (11)	28.47 (13)	9.22 (13)	58.58 (2)	65.11 (3)	50.77 (3)
2. Jalpaiguri	24.01 (11)	31.96 (12)	15.04 (10)	20.62 (13)	28.76 (12)	11.52 (11)	55.86 (6)	61.14 (10)	49.54 (6)
3. Darjeeling	33.07 (6)	41.75 (7)	23.23 (7)	26.01 (7)	35.23 (8)	15.88 (8)	56.64 (5)	62.19 (8)	49.64 (5)
4. W. Dinajpur	22.12 (12)	31.09 (13)	12.37 (12)	18.66 (14)	27.77 (14)	8.84 (14)	55.63 (7)	62.25 (7)	47.95 (8)
5. Maldah	17.61 (16)	25.45 (16)	9.34 (15)	15.81 (16)	23.64 (16)	7.56 (15)	58.54 (3)	65.35 (2)	50.93 (2)
6. Murshidabad	19.66 (15)	26.73 (15)	12.26 (13)	17.29 (15)	24.29 (15)	9.99 (12)	45.26 (16)	52.77 (16)	37.32 (14)
7. Nadia	31.31 (8)	38.61 (8)	23.61 (6)	25.08 (8)	32.24 (10)	17.56 (6)	53.34 (4)	65.94 (1)	50.17 (4)
8. 24 Parganas	33.45 (5)	48.44 (3)	27.13 (4)	28.73 (6)	40.19 (5)	16.47 (7)	50.37 (12)	62:54 (6)	48.60 (7)
9. Calcutta	60.42 (1)	64.08 (1)	54.40 (1)	—	—	—	60.32 (1)	64.08 (5)	54.40 (1)
10. Haora	40.59 (2)	50.51 (2)	28.68 (2)	32.24 (3)	43.18 (4)	20.62 (3)	52.16 (10)	59.42 (12)	41.81 (11)
11. Hugli	39.82 (3)	48.33 (4)	28.21 (3)	33.29 (2)	43.61 (3)	22.32 (2)	54.20 (8)	64.40 (4)	46.27 (9)
12. Medinipur	32.87 (7)	45.59 (5)	19.42 (8)	31.21 (4)	44.23 (2)	17.75 (5)	51.78 (11)	61.42 (9)	40.64 (12)
13. Bankura	26.30 (10)	37.63 (9)	14.47 (11)	24.75 (10)	36.16 (7)	12.88 (10)	45.50 (15)	55.54 (14)	34.60 (15)
14. Puruliya	21.50 (14)	34.27 (11)	8.25 (16)	19.22 (12)	32.06 (11)	5.98 (16)	46.85 (14)	57.78 (13)	34.59 (16)
15. Bardhaman	34.36 (4)	42.87 (6)	24.75 (5)	29.07 (5)	37.52 (6)	19.87 (4)	52.29 (9)	59.76 (11)	42.77 (10)
16. Birbhum	26.57 (9)	35.45 (10)	17.40 (9)	25.01 (9)	33.93 (9)	15.85 (9)	47.25 (13)	54.70 (15)	38.92 (13)
17. West Bengal	33.20	42.81	22.42	26.72	35.80	15.02	55.93	62.01	47.84

Source: Census of India, 1971

Note: Figures within brackets show inter-district rank.

1971, came down to the sixth position in 1981, while Nadia fell from the fourth to the tenth position. On the other hand, 24 Parganas, Haora and Hugli show improvements in their ranks.

Rural-urban divergences in female literacy rates in the districts do not show major changes from 1971 to 1981. As expected, the FLRs are much higher in urban than in rural sectors in all districts. Koch Behar and Maldah rank second and sixth in urban FLR; but come eleventh and fifteenth in rural FLR, in 1981. A similar situation prevailed in 1971. West Dinajpur and, to a lesser extent, Darjeeling, rank better in the urban than in the rural sector. On the other hand, Bardhaman, Birbhum, Medinipur, Haora and Hugli rank better in the rural scene.

Gender-based differences in literacy rates is, as expected, of much greater magnitude in the rural than in the urban sector, in all districts, in both 1971 and 1981. A particularly bad performer in this respect, however, is Puruliya, which shows the highest difference between male and female literacy rates in both rural and urban sectors in both years.

A study of Tables 1 and 2, therefore, yields the following findings:

1. The geographically contiguous districts of North Bengal, — Koch Behar, Jalpaiguri, Darjeeling, West Dinajpur, Maldah and Murshidabad; as well as Puruliya, Bankura and Birbhum in the West, form the weakest blocks in the state as far as FLR is concerned. Of these, Darjeeling, in the North, has done much better than its neighbours. In the western block, Puruliya is a particularly bad performer. The worst FLR situation in the state is to be found in the six districts Puruliya, Maldah, West Dinajpur, Murshidabad, Koch Behar and Jálpaiguri, all of which have female literacy rates of 20% or less. Haora, Hugli, 24 Parganas and Bardhaman have been the good performers in the state, relatively speaking.*
2. More changes are taking place in the regional dimension of the urban literacy scene than in its rural counterpart. The rural pattern remains virtually unaffected over these ten years, and so also does the overall inter-district picture.
3. Maldah and Koch Behar appear to be doing much better in the urban as compared to the rural scene with reference to FLRs. Haora, on the other hand, has a much better rank in the rural than in the urban sector.
4. Puruliya's case needs special study from the gender-bias angle, as it is found to show a persistently and uniformly bad performance FLR-wise, apart from its generally weak literacy base.

- Calcutta is a special case, not really comparable with the other districts.

Table 3 Sex-specific population with education upto primary level (per cent), 1981

Name of District	Literate without education level				Primary level	
	Non-formal		Formal		Male	Female
	Male	Female	Male	Female		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. Koch Behar	0.43	0.17 (13)	11.77	6.71 (10)	16.37 (9)	8.17 (11)
2. Jalpaiguri	0.28	0.12 (15}	11.41	6.67 (11)	14.18 (13)	7.92 (12)
3. Darjeeling	1.69	0.80 (2)	14.61	8.23 (9)	17.43 (8)	11.23 (9)
4. W.Dinajpur	0.65	0.24 (11)	10.59	6.02 (13)	13.63 (14)	6.99 (14)
5. Maldah	0.28	0.10 (16)	8.96	4.87 (15)	12.22 (15)	6.04 (15)
6. Murshidabad	0.41	0.17 (13)	8.75	6.07 (12)	11.92 (16)	7.84 (13)
7. Nadia	0.70	0.40 (6)	10.25	8.35 (8)	16.12 (12)	12.70 (7)
8. 24 Parganas	1.08	0.67 (3)	12.48	9.19 (5)	19.36 (6)	13.83 (5)
9. Calcutta	1.19	1.13 (1)	9.43	10.85 (3)	20.29 (3)	21.02 (1)
10. Haora	1.00	0.58 (4)	14.84	12.18 (1)	21.88 (2)	16.31 (2)
11. Hugli	0.88	0.55 (5)	14.54	11.09 (2)	20.24 (4)	15.73 (3)
12. Medinipur	0.62	0.31 (8)	15.65	10.26 (4)	22.51 (1)	12.99 (6)
13. Bankura	0.58	0.25 (9)	14.77	8.91 (7)	19.56 (5)	10.61 (10)
14. Puruliya	0.90	0.22 (12)	13.93	4.99 (14)	16.30 (10)	5.03 (16)
15. Bardhaman	0.63	0.40 (6)	11.29	9.15 (6)	17.52 (7)	14.13 (4)
16. Birbhum	0.45	0.25 (9)	10.29	7.42 (16)	16.18 (11)	11.69 (8)
17. West Bengal	0.77	0.43	12.28	8.64	18.12	12.17

Source: Census of India, 1981.

Note: Figures within brackets show inter-district ranks.

In Table 3 we show the district-wise, primary education picture in 1981. The percentage of population which is literate, but has not acquired primary level education, is also shown separately. In the female primary education (FPE) field, the worst performers are Puruliya, Maldah, West Dinajpur, Murshidabad, Jalpaiguri and Koch Behar, in which only 5.03%, 6.04%, 6.99%, 7.84% and 8.17%, respectively of female population were found to be educated upto the primary level. The best performers (excluding Calcutta) are Haora (16.31%), Hugli (15.73%), Bardhaman (14.31%) and 24 Parganas (13.83%). The other districts rank in between. The pattern of good and indifferent performance, therefore, is very similar for literacy and primary education among women in the district of West Bengal. Puruliya, once again, shows the maximum divergence between percentage male and female population with primary education, ranging from 16.30% to 5.03%, respectively. The good performers in the sphere of FPE (Haora, Hugli, Bardhaman and 24 Parganas) show smaller gender-based differences than the bad performers. An interesting point to note is that in Calcutta the female primary-level-educated percentage (21.02%) is marginally higher than the percentage for males (20.29%).

The foregoing analysis has given us a summary idea about the inter-district variations in literacy and primary education in West Bengal. A very similar picture is found to obtain in the two fields. It may be useful and interesting to study whether the above picture can be connected up with regional variations in selected, relevant socio-economic factors relating to the different districts in West Bengal. In the next section, therefore, we present an overview of the inter-district differences pertaining to some factors which are generally held to be connected with female education upto the primary level. An attempt is then made to study whether these factors appear to have any link with female primary education.

3. Linkages between Female Primary Education and Selected Socio-Economic Indicators

In Table 4 a district-wise picture of West Bengal is presented with reference to: 1) % of urban to total population, 2) % of scheduled caste population to total population, 3) % of scheduled tribe population to total population, 4) the number of registered factories per 100 square km; and 5) % of total working force engaged as (i) cultivators, (ii) agricultural labourers and (iii) other workers.

These are some of the factors which are generally held to be connected with high or low levels of female education. Urbanization is expected to have a positive relation; a high % of SC and ST population is likely to have a negative relation; while a high density of registered factories in a district may show a positive association with FPE. The occupation structure is likely to be of relevance because it has been found that enrolment and retention rates of students are not uniform for students coming from homes with different occupations.

In order to get an overview of the pattern of linkages that appears to exist between rates of female literacy-cum-primary-education, on the one hand, and the above-mentioned socio-economic indicators, on the other, we have, in Table 5, classified the districts of West Bengal into above-average and below-average areas with respect to the relevant categories. The inter-district ranks have also been shown. The following observations can be made:

1. A reasonably good positive link is found between urbanisation and female education. Calcutta, Haora, Hugli, 24 Parganas and Bardhaman occupy the first five places with regard to both female education and urbanisation; while the last six places are taken up by Puruliya, Maldah, West Dinajpur, Koch Behar, Jalpaiguri and Murshidabad. There is some interchange among ranks, but the best and worst blocks coincide.
2. No clear link comes through as between the % of SC population and female education, on a district-level basis.
3. A somewhat closer negative association is observed between the concentration of ST population and female education. Puruliya, Jalpaiguri, West Dinajpur, and Maldah all have above-average proportions of ST population. Among the bad performers in female education only Murshidabad has a below-average percentage of ST population. On the other hand, except for Bardhaman, the other four districts in the good-performers' block have below average concentrations of ST population.
4. Industrialisation, represented by the density of registered factories in each district, yields a positive relation with female primary education. The six districts which are the weakest in FPE all have below-average concentration of registered factories. Among the five good performers in FPE, Bardhaman is below average in factory density and Hugli also marginally so.
5. With regard to occupational structure, girls coming from households engaged in industry and service have a better chance of getting primary education than those coming from agricultural households. The pattern emerging from Table 5 loosely corroborates the above hypothesis. The

Table 4 A profile of West Bengal by District Selected Indicators, 1981

Name of District	% of urban to total population	% of SC to total population	% of ST to total population	Registered factories per 100 sq km	% of total working force engaged as		
					Cultivators	Agricultural labourers	Other workes
1. Koch Behar	6.90 (15)	49.85 (1)	0.57 (14)	0.38 (14)	50.59 (1)	26.10 (8)	23.31 (16)
2. Jalpaiguri	14.05 (8)	34.61 (2)	22.20 (1)	4.96 (7)	30.12 (10)	14.33 (13)	55.55 (5)
3. Darjeeling	27.55 (6)	14.25 (14)	14.75 (3)	5.35 (5)	25.79 (11)	8.41 (15)	65.80 (3)
4. W. Dinajpur	11.17 (9)	28.57 (5)	10.82 (4)	0.55 (13)	43.77 (2)	31.78 (2)	24.45 (15)
5. Maldah	4.78 (16)	16.89 (11)	7.54 (7)	0.21 (16)	35.99 (6)	30.91 (4)	33.10 (12)
6. Murshidabad	9.36 (10)	13.05 (15)	1.23 (13)	0.26 (15)	32.69 (8)	31.31 (3)	36.00 (10)
7. Nadia	21.59 (7)	26.21 (6)	1.89 (11)	2.33 (8)	30.52 (9)	27.59 (6)	41.89 (8)
8. 24 Parganas	38.82 (3)	25.03 (8)	1.76 (12)	21.12 (3)	20.12 (13)	20.24 (11)	59.64 (4)
9. Calcutta	100.00 (1)	4.54 (16)	0.13 (16)	594.00 (1)	0.27 (16)	0.29 (16)	99.44 (1)
10. Haora	45.12 (2)	15.25 (12)	0.25 (15)	92.93 (2)	9.97 (15)	13.98 (14)	76.05 (2)
11. Hugli	29.53 (4)	21.57 (9)	3.96 (10)	7.12 (4)	23.04 (12)	26.57 (7)	50.39 (7)
12. Medinipur	3.49 (12)	14.60 (13)	7.99 (6)	0.65 (12)	43.64 (3)	25.32 (10)	31.04 (13)
13. Bankura	7.63 (14)	28.90 (4)	10.55 (5)	0.95 (10)	36.29 (5)	30.33 (5)	33.38 (11)
14. Puruliya	9.00 (11)	18.78 (10)	18.79 (2)	0.79 (11)	40.76 (4)	19.92 (12)	39.32 (9)
15. Bardhaman	29.39 (5)	25.09 (7)	5.75 (9)	5.24 (6)	19.93 (14)	25.95 (9)	54.12 (6)
16. Birbhum	8.28 (13)	29.80 (3)	6.92 (8)	1.82 (9)	34.69 (7)	35.07 (1)	30.24 (14)
17. West Bengal	26.47	21.99	5.63	7.23	28.15	22.80	49.05

Source: Computed from *Economic Review*, Government of West Bengal, various issues.

Note: Figures in brackets denote inter-district ranks.

Table 5 Female primary education and selected socio economic linkages, 1981

	Female literacy rates	% of female population with primary education	% of urban to total population	% of SC to total population	% of ST to total population	Registered Factories per sq. km.	% of working force engaged as		
							Cultivators	Agricultural labourers	Other workers
1. Koch Behar*	BA (12)	BA (11)	BA (15)	AA (1)	BA (14)	BA (14)	AA (1)	AA (8)	BA (16)
2. Jalpaiguri*	BA (11)	BA (12)	BA (8)	AA (2)	AA (1)	BA (7)	AA (10)	BA (13)	AA (5)
3. Darjeeling*	AA (6)	BA (9)	AA (6)	BA (14)	AA (3)	BA (5)	BA (11)	BA (15)	AA (3)
4. W. Dinajpur*	BA (14)	BA (14)	BA (9)	AA (5)	AA (4)	BA (13)	AA (2)	AA (2)	BA (15)
5. Maldah*	BA (15)	BA (15)	BA (16)	BA (11)	AA (7)	BA (16)	AA (6)	AA (4)	BA (12)
6. Murshidabad*	BA (13)	BA (13)	BA (10)	BA (15)	BA (13)	BA (15)	AA (8)	AA (3)	BA (10)
7. Nadia*	BA (8)	AA (7)	BA (7)	AA (6)	BA (11)	BA (8)	AA (9)	AA (6)	BA (8)
8. 24 Parganas**	AA (4)	AA (5)	AA (3)	AA (8)	BA (12)	AA (3)	BA (13)	BA (11)	AA (4)
9. Calcutta**	AA (1)	AA (1)	AA (1)	BA (16)	BA (16)	AA (1)	BA (16)	BA (16)	AA (1)
10. Haora**	AA (2)	AA (2)	AA (2)	BA (12)	BA (15)	AA (2)	BA (15)	BA (14)	AA (2)
11. Hugli*	AA (3)	AA (3)	AA (4)	BA (9)	BA (10)	BA (4)	BA (12)	AA (7)	AA (7)
12. Medinipur*	BA (7)	AA (6)	BA (12)	BA (13)	AA (6)	BA (12)	AA (3)	AA (10)	BA (13)
13. Bankura*	BA (10)	BA (10)	BA (14)	AA (4)	AA (5)	BA (10)	AA (5)	AA (5)	BA (11)
14. Puruliya*	BA (16)	BA (16)	BA (11)	BA (10)	AA (2)	BA (11)	AA (4)	BA (12)	BA (9)
15. Bardhaman**	AA (5)	AA (4)	AA (5)	AA (7)	AA (9)	BA (6)	BA (14)	AA 99)	AA (6)
16. Birbhum*	BA (9)	BA (8)	BA (13)	AA (3)	AA (8)	BA (9)	AA (7)	AA (1)	BA (14)

Source: Tables 1, 3 and 4

Notes: The figures in brackets donote inter district ranks. BA = Below average; AA = Above average

* Show best performers in FPE; ** Show worst performers in FPE

five-district FPE stronghold in West Bengal is wholly above average in the percentage of the working force enaged as 'other workers' (which includes industry and service in our three-way classification): wholly below average in percentage engaged as cultivators; and below average in percentage employed as agricultural labourers in three out of the five districts. In general, the reverse kind of occupational pattern is observed in the bad FPE districts.

6. Beside the general pattern of association that emerges, Table 5 also yields helpful hints in some special cases. In the North Bengal group of districts we have seen that Darjeeling is much better placed in the field of FPE than its neighbours, even though it has a fairly high concentration of ST population. The reasons possibly are connected with the facts that it has a relatively much higher level of urbanisation and that 66% of its working force is in the 'other workers' category, 26% in cultivators' and only 8% in the agricultural labourers' group. Maldah and Koch Behar are seen to be doing significantly better in the urban than in the rural scene in the context of FPE. A possible explanation is that these two districts have the lowest proportion of urban population in the state and so, in the highly localised, small, urban centres, the proportion of female population with primary education assumes respectable dimensions. Puruliya's particularly bad performance in the female education field as compared to the male, specially in the rural sector, however, cannot be understood on the basis of the present study.

4. Policy Alternatives in the Context of Universalisation of Primary Education

In interpreting the results of our inter-district analysis and in attempting to obtain from them useful insight regarding policy interventions an important point that is to be borne in mind is that the linkages that we have obtained can, at best, be regarded as *some* factors *associated with* the level of FPE *in a particular region* (in this case, West Bengal). So:

1. These associations are area-specific and cannot mechanically be extended to other Indian states, nor to the inter-state context. This is evident if we consider the following facts: i) Kerala, which had the highest FLR in 1981 (65.73%) ranked below even Rajasthan and Madhya Pradesh (whose FLR rates were 11.42 and 15.53, respectively) as far as the proportion of urban to total population is concerned. (ii) In inter-district analysis, the concentratin of ST population in an area is supposed to have

a depressing effect on female education. That this is due to other conditions prevailing in that region (state) rather than to something inherent in the ST population itself is clear from the fact that states like Nagaland and Meghalaya, in which above 80% of the population consists of scheduled tribes, have much higher FLR rates than Rajasthan, Bihar, Uttar Pradesh, etc. In fact, female tribal literacy rates vary widely in different regions of the country.

The factors promoting or retarding female primary education are many and varied, being economic, sociological, geographical, cultural and institutional in character. A particular mix of these factors obtaining in a particular region makes for the good or bad female-education situation prevalent there. It is not within the scope of this paper to take into account even a reasonably good cross-section of these possible influences. As such our analysis remains extremely partial and truncated and must be interpreted with caution and senstivity.

2. The linkages that we have been discussing are concerned with factors *associated with* the level of FPE. These factors cannot, in any meaningful sense, be taken to be *causes* of high or low rates of FPE. Our analysis, so far, may, at best, yield some idea of the situations associated with good or bad FPE rates, but it does not, per se, indicate the factors which really retard or promote progress towards educating our womenfolk.

The area-specific, associations that we have obtained, therefore, cannot by themselves, suggest policy alternatives geared towards UPE. However, if we look behind the associations, we can seek the causes which yield the associations; and this insight, in turn, may help in devising and adopting policies which would enable us to strengthen the helpful associations and weaken the harmful ones.

Thus, for example, when we observe that in West Bengal, districts which have large proportions of rural population are backward in FPE, it is not of help to identify this as the cause of low FPE and to suggest a fast rate of urbanisation as the answer to the problem. It may be more useful to try and assess what factors are responsible for inhibiting female education in West Bengal's rural set-up, and to take appropriate corrective steps. This exercise should be connected with the special problems that beset women's education possibilities in agricultural households as compared to those of industrial workers and service holders. There are supply-side disadvantages faced by rural people, in general, and agricultural households, in particular, such as, lack of necessary infrastructure, dearth of trained and dedicated teachers, shortage of necessary and appropriate teaching materials and teaching aids, etc. On the demand side, there are questions of (i) poverty-induced inability to bear the direct and indirect costs of female education, (ii) the traditional sex stereotyped concepts relating to place in society; potential for and desirability of engaging in academic pursuits; designated sphere of work; and so on for men and women, etc. These are the problems which have to be directly addressed.

Similarly, when SC or ST populations in West Bengal are found to be backward in the female-education field, it is not useful to stop at this stage, for we cannot summarily identify the character of the population itself as being the cause of this phenomenon. We have to identify how, in a particular region, these groups of people are specially disadvantaged; leading to low participation of women in academic pursuits from the primary level. Sensitive, micro-level research would be needed to identify the ways in which education can be made available to tribal women, without disrupting their socio-cultural identity completely by mechanistic absorption of the tribal people into the mainstream through indiscriminate urbanization.

From other features characterising areas backward in female education also, relevant causal factors would have to be identified, and appropriate policy interventions aimed at strengthening the education-promoting factors and at weakening the education-retarding factors devised.

In this context some key issues and policy alternatives are suggested:

1. Income maintenance programmes (IMP) are standard measures undertaken to encourage and enable poverty-ridden households to send their girls to school. The form in which these IMPs and various incentive schemes are being run have not been very effective in many cases. Provision of free books, meals, and, sometimes, dresses are usually provided to school-going girls as incentives. Their significant positive impact on enrolment is not to be denied, but the problem of miserably low attendance rates remains untouched or even increases. To address this problem, small monetary stipends are sometimes given to girl students who attend school for more than a stipulated number of days in a year. But this scheme as well may have only limited success. In some cases the stipends may be collected on the basis of false attendance records. In other cases, the stipends may be foregone as they are insufficient to cover the 'costs' that the girl student's family would have to bear in order to permit the child to attend school regularly. Some of these costs could be in the nature of:

i) The income that the family would lose because the mother of the girl-student has to stay away from income-generating activity in cultivation or in bidi-making, say, because she has to spend a major part of the day in looking after the smaller children and doing the household chores which would otherwise have been delegated to the now school-going girl child; and (ii) the income that the family would lose in the form of the amount that the girl herself could have earned from bidi-making, let us say, or from doing domestic work in wealthier households.

It is clear and well-known that these problems have their roots in our basic socio-economic structure which has generated and perpetuated such widespread and abject poverty that providing for the immediate and minimum requirements of life remains, perforce, the sole concern of countless families. To make any dent in this aspect of the problem significant structural and institutional changes would have to be made in order that the normal functioning of our economy ensures viable living conditions for all sections of our population.

In the short run, however, differently designed income maintenance programmes may be tried out. As we have observed, one of the main reasons why little girls from rural agricultural households cannot go to school is that they have to take care of siblings at home. In order to reduce this constraint, creches or day-care centres for infants should be set up in rural areas. This would have the twin effect of (i) releasing the older girls from the task of looking after their younger brothers and sisters, and (ii) creating an environment in which the differential treatment given to male and female children since birth in relation to nutrition, health care, preparation for future school-going, etc. can be, at least, partially, reduced from the very outset.

These centres could be contiguous to the regular schools so that they could be partially staffed by older, local girls who have already received some schooling and orientation in this direction. The income-earning possibility from this source may act as an additional incentive to school-going girls and their families.

This brings us to another very important need in the sphere of promoting FPE. If a girl's family, and the girl herself, is to be effectively encouraged in this matter, then suitable employment opportunities must be created for women in rural sectors who have acquired a minimum standard of education. If marriage is the only option open to a rural girl to maintain herself, education may act as a hindrance rather than a help in our present rural set-up. An integrated approach is urgently called for. Our education-promoting efforts in the rural sector must, very importantly, be connected up with appropriate employment-generating schemes for rural women who acquire primary or elementary level education.

2. On the supply side of the rural education scene, a serious deficiency is in the field of the nature of education that is made available. Reasonably detailed regional statistics regarding the number of schools (kutcha or pukka); the number of classrooms and other facilities which are present in these schools; the number of teachers, black boards; etc.; are now available, and shortfalls in these areas can be identified. A more subtle, less easily identifiable, but perhaps even more serious bottleneck is in the realm of what is sought to be delivered in the name of primary education.

The quality of education that is currently made available in the rural areas leaves much to be desired. Learning has to be made interesting and enlivening, if it is to attract students, not dull and burdensome. This matter needs looking into in the urban areas as well, but in the rural areas it is of special importance, because, school-going has not yet become the social and cultural norm which would make it near-automatic, irrespective of what is delivered. For little girls in our villages, studying involves a lot of physical and financial strain. We must make it interesting and worth-while enough for them. We must relate it to their lives, their thoughts and their environment, and thereby help them develop rational attitudes and perspective which in turn may, in due course, enable them collectively to influence their environment and their own and future generation's lives in desired directions.

It is not enough to think only of the problem of the vertically differential nature of educational facilities open to, say, rural and urban children. With regard to books and curriculum it is not always possible, nor desirable, to let that which is being developed in urban centres trickle down to the rural sector. Appropriate curricula and books would have to be devised for the rural environment. It is not a question of higher or lower standards, but of relevance and appropriateness of interest and significance. And this is a matter of utmost importance at the primary education level. Unless this aspect is taken care of, many girls, who have been induced into literacy by mechanical enticements like free meals and dresses will, as mature women, often be found to have slipped back into illiteracy. The role of rural libraries stocked with books which are of interest and use to rural women cannot be over-emphasised in this context.

3. The factors which retard female education in our society are deeply ingrained in our entire socio-cultural-institutional fabric and are therefore,

difficult to dislodge. Physical and financial accessibility to education is a necessary, but not sufficient, condition for spreading female education in those areas which are backward in this sphere. The desire to acquire education must also be generated. A lot of opaqueness persists in indentifying how to go about making effective headway. The magnitudes of the motivational problems involved are immense.

In tackling this multidimensional problem, there is no substitute for dedicated social organisations and workers. The government must work hand in hand with them, strengthening their forces, financially and institutionally, as required. Otherwise, providing educational aids and grants, schools, teachers, etc. will go waste. The role of missionary organisations in bringing about the spread of education in backward tribal areas of difficult terrain need to be studied in order to learn from the experiences in these regions. It must be understood that allocation of monetary funds or physical items or even infrastructure will not be able to make effective inroads into the bastions of female illiteracy without motivated human endeavour and participation.

In summing up we may note that the very process of spreading primary education, if visualised and approached in a sensitive manner, may make the experience enriching for both urban and rural sectors; for both tribal and mainstream sections of population; for both educationally backward regions and educationally advanced regions. Done in a mechanical fashion, we may achieve universalisation of literacy or of the technicalities of primary level curricula, but may remain a long way from universalisation of primary 'education'.

TWENTY ONE

Inter-District Variations in Educational Development in Orissa: Lessons for Reduction of Disparities

Sailabala Debi

In spite of massive efforts during different Five Year Plans, regional disparities in the levels of educational development have continued to persist. Disparities in educational development between different States within the country, between different districts within a State, between different talukas within a district, etc. tend to stand on the way to development process. During the Seventh Plan special priorities are given to bring equality in educational development. The National Education Policy (1986) has also laid emphasis to remove regional disparities in educational development. Several research studies have been conducted in India on inter-State, inter-district and inter-taluka variations in educational development. The studies conducted by Nuna and Ahmad (1986), Tilak (1984), Josephine (1986), Sankar (1986), Aggarwal and Muralidhar (1986), Hemalata Rao (1986), Sujatha (1987) and many others have found that there exist inter-state, inter-district and inter-taluka variations in educational development in India. The common findings of these studies indicate that disparities in educational development exist even after four decades of planned development. Hence, it has become a matter of both social and economic concern for the country and it calls for an urgent need to take necessary steps for reducing such disparities. But no such study has yet been conducted in the State of Orissa. The present paper is an attempt in this direction.

The main objectives of this paper are to:

(i) examine inter-district variations in educational development in Orissa and (ii) suggest measures to reduce such variations. It is divided into six sections. The second section presents the framework of analysis of the study. Section 3 gives a brief idea of educational development in Orissa. In Section 4, an attempt is made to examine the inter-district disparities/variations in educational development with the help of two indices, i.e. (i) literacy index and (ii) composite cost weighted index. Section 5 attempts to spell out different measures to reduce inter-district disparities in educational development. In Section 6, the concluding remarks are presented.

2. Framework of the Study

The study makes use of secondary data with district as the unit of analysis. The literacy rates of the State and for different districts are collected from the Census Handbook. For educational development, the study has used the data on enrolment, enrolment ratio, teacher-pupil ratio and number of educational institutions for the State. The district-wise data on literacy rate, enrolment ratio and direct expenditure per pupil has been used. The data on educational indicators are collected from the Directorate of Public Instruction and the data source of inter-district expenditure on education is Accountant General's Office Bhubaneswar.

For measuring intra-group (i.e., male and female) disparity in literacy for different districts of Orissa, Sopher's Index (1974) modified by Kundu and Rao (1985) has been used in the present study. The modified version of the index is as follows:

$$D = \log X_2/X_1 + \log (Q - X_1)/(Q - X_2)$$

where $X_2 \geq X_1$, and $Q = 200$, D = disparity index

In order to have a divergent picture of inter-district educational development the study has used the cost-weighted index as developed by Tilak (1979). This index has taken into consideration the enrolment ratio (i.e., quantitative) and the cost per pupil (i.e., qualitative) which are two important indicators of educational development. The per pupil cost of education used here is direct expenditure on education only. The index is as follows:

$$I_j = \frac{\Sigma E_{ij}\ C_{ij}}{\Sigma C_{ij}}$$

where i = 1, 2, 3 (levels of education)
j = 1, 2, 3, ..., 13 (districts)
I_j = Composite index of educational development
E_{ij} = Enrolment ratio for i-th level of education in the j-th district

C_{ij} = Cost proportion for the *i*-th level of education in the *j*-th district,

The study is not free from limitations. First, the analysis is based on district-wise data on literacy rates of males and females for the 1981 Census only. The ideal selection would have been to use other discriminated groups of population, i.e. Scheduled Castes and Scheduled Tribes, rural-urban, rural males and rural females and urban males and females, etc. But it would not affect the result of disparity indices because the disparity in literacy exists largely between male and female. Second, the composite index would have been calculated by taking all the indicators of educational development. But it was not possible to construct such index as the data on all the indicators were not uniformly available at district level. The absence of such a composite index is expected to be substituted by the cost-weighted index. However, inspite of the limitations, the study is expected to contribute to our understanding of inter-district disparities in educational development in Orissa.

3. Educational Profile of Orissa

Orissa is situated in the South-Eastern coast of India. It was formed into a separate province on 1 April 1936. At present the State has 13 districts. Orissa accounts for 4.7% of the area of the country and 3.95 % of its population. The population of the State as per 1981 census was 263.70 lakh of whom 50.47% are males and 49.53% are females.

Orissa has the dubious distinction of being one of the economically backward States of the country. The per capita income of the State was Rs. 1954 in 1985-86 as compared to the national per capita income of Rs. 2596.

In so far as educational development is concerned, Orissa is considered as a backward State in respect of literacy, enrolment ratio, teacher-pupil ratio, educational expenditure, etc. The literacy rate of the State was 34.23% as per 1981 census of which female literacy was 21.12% and male literacy was 47.10%. The State spent 4.79 % of its Net State Domestic Product on education in 1986-87. At the beginning of the planning era the per capita expenditure on education was among the lowest in the country. The per capita expenditure on education in Orissa was Rs. 87 in 1986-87 as against Rs. 168 in Kerala, Rs. 103 in Andhra, Rs. 107 in West Bengal, Rs. 175 in Madhya Pradesh and Rs. 62 in Bihar. The total expenditure on education had gone up from a mere Rs. 1.25 crore in 1951-51 to Rs. 273.9 crore in 1986-87 showing an annual compound growth rate of 16.6%. The percentage of enrolment in the age-group of 6-11, 11-14, 14-17 and 17-23 in primary, middle, secondary and higher education are respectively 89.2%, 36.7%, 22.9% and 9.3 in 1986-87 as against 17%, 4%, 1.8% and 0.4% respectively for primary, secondary, and higher education in the year 1950-51. This shows a compound growth rate of 1.9%, 6.3%, 7.3% and 9.1 % in primary, middle, secondary and higher education respectively.

The enrolment in 1950-51 was 3.15 lakh in primary, 0.4 lakh in middle, 0.16 lakh in secondary and 0.06 lakh in higher education. It increased to 35.44 lakh in primary, 8.19 lakh in middle, 5.63 lakh in secondary and 2.13 lakh in college education by the year 1986-87. This shows annual compound growth rate of 6.9%, 8.7% and 10.4% and 10.4% for enrolment in primary, middle, secondary and college levels respectively. During the same period (i.e., 1950-51 to 1986-87) the number of primary schools has increased from 9801 to 46,053, middle schools from 501 to 8,832, secondary schools from 172 to 4,036 and colleges increased from 14 to 369. Thus the number of primary schools increased at an annual growth rate of 4.3%, middle schools by 8.2%, secondary schools by 9.2% and the colleges by 9.5%. The annual compound growth rates of teachers during the same period in primary, middle, secondary and higher education are 4.7%, 6.5%, 8.2% and 9.8% respectively. The teacher-pupil ratio during the same period did not show any improvement. In other words annual compound growth rate of the teacher-pupil ratio was 1.2% in primary, 1.6% in middle, 1.9% in secondary and 0.4% in higher education over the period 1950-51 to 1986-87. The State expenditure on education was Rs. 66.54 lakhs in 1959-51 and it had increased to Rs. 23,145.01 lakh in 1986-87 showing an annual compound growth rate of 17.6%. During the same period the expenditure on elementary education (both primary and middle) increased by an annual compound growth rate of 16.5%, secondary by 20.3% and higher (general) education by 16.9%. The details of the above figures are presented in Table 1.

A perusal of the analysis of data presented in Table 1 clearly indicates that there are disparities between different levels of education in Orissa in so far as the expansion of education institutions, enrolments, teachers and expenditure on education are concerned in spite of persistent efforts by the government during different plans to achieve equality in different educational sectors. Besides there are disparities of educational development between male and female, between rural-urban and between different districts of the State. The following section is devoted to examine the intra-group and inter-district disparities in educational development in Orissa.

Table 1 Growth of education in Orissa

Items	1950-51	1986-87	Annual compound growth rate
Institutions			
Primary	9801	46053	4.3
Middle	501	8832	8.2
Secondary	172	4036	9.2
Higher (General)	14	369	9.5
Enrolment (lakh)			
Primary	3.15	35.44	6.9
Middle	0.40	8.19	8.7
Secondary	0.16	5.63	10.4
Higher	0.06	2.13	10.4
Enrolment Ratio			
Primary	17.0	89.2	1.9
Middle	4.0	36.7	6.3
Secondary	1.8	22.9	7.3
Higher	0.4	9.3	9.1
Teachers			
Primary	16525	86369	4.7
Middle	2569	25416	6.5
Secondary	2247	38893	8.2
Higher	298	8844	9.8
Teacher-Pupil Ratio			
Primary	27	81	1.2
Middle	18	32	1.6
Secondary	7	14	1.9
Higher	21	24	0.4
Expenditure (in lakh of Rs) (direct)			
Elementary	42.45	10278.34	16.5
Secondary	12.06	9488.26	20.3
Higher	12.03	3378.41	16.9
Total	66 54	23145.01	17.6

* Elementary education includes both primary and middle.

Source: Directorate of Public Instruction, Orissa.

4. *Inter-District Disparities in Education*

In this section the district-wise disparities in educational development is analysed. For this purpose we have considered two indices, i.e. (i) literacy index and (ii) cost-weighted composite index.

4.1 Disparities in Literacy: The extent of inter-district disparities in literacy would be evident from the analysis of the data presented in Table 2.

Table 2 District-wise literacy rates in Orissa.

Districts	1971	1981
Balasore	33.7 (3)	42.1 (3)
Bolangir	19.9 (9)	25.6 (11)
Cuttack	36.4 (1)	45.4 (2)
Dhenkanal	27.8 (4)	36.8 (4)
Ganjam	24.4 (7)	31.3 (7)
Kalahandi	13.9 (12)	19.4 (12)
Keonjhar	21.3 (8)	30.2 (8)
Koraput	10.6 (13)	16.1 (13)
Mayurbhanj	18.1 (11)	25.7 (10)
Phulbani	19.8 (10)	27.1 (9)
Puri	35.3 (2)	45.5 (1)
Sambalpur	27.1 (5)	33.8 (6)
Sundargarh	26.5 (6)	36.2 (5)
Orissa	26.2	34.2

Source: Census Hand Book 1971 and 1981
Note: Figures in the parantheses indicate ranks

It is observed that the literacy rate is the highest in Puri district (45.5%) and the lowest in Koraput district (10.1%) in 1981 census. If one compares the rank order of districts during 1971 and 1981, it could be seen that the relative positions of most of the districts have changed over the decade except Balasore, Dhenkanal, Ganjam, Kalahandi, Keonjhar and Koraput. Though the literacy rates of Bolangir, Cuttack and Sambalpur have increased in 1981 over 1971 but the relative positions of districts like Puri, Sundargarh and Phulbani have improved in 1981 census.

District-wise literacy rates among males and females are given in Table 3. It gives the idea of the intra-group disparities in literacy in different districts of the State. The percentage of literacy among males is the highest in Puri district (59.26%) and the lowest in Koraput district (23.59%). The female literacy is the highest in Cuttack district (32.38%) and the lowest in Kalahandi district (7.73%). It may be observed that 8 districts fall below the State average (34.23%).

The inter-district variations in literacy as measured by the coefficient of variations indicate that the variations are less among males than among females. The value of coefficient of variation for males' literacy is 22.17% while for females it is 42.55%.

Table 3 District-wise literacy in Orissa 1981

Districts	Percentage of literacy			Sopher's disparity index
	Total	Male	Female	
Balasore	42.07	55.57	28.30	0.3682 (10)
Bolangir	25.63	39.89	11.28	0.6199 (3)
Cuttack	45.43	58.12	32.38	0.3264 (13)
Dhenkanal	36.89	51.61	21.58	0.4587 (9)
Ganjam	31.31	46.97	17.12	0.5016 (4)
Kalahandi	19.42	31.23	7.73	0.6629 (1)
Keonjhar	30.22	43.06	17.21	0.4645 (7)
Koraput	16.10	23.59	8.56	0.4757 (6)
Mayurbhanj	25.66	37.36	13.87	0.4889 (5)
Phulbani	27.06	42.62	11.45	0.6493 (2)
Puri	45.49	59.26	31.17	0.3581 (11)
Sambalpur	33.84	47.75	19.56	0.4612 (8)
Sundargarh	36.17	47.33	24.19	0.3528 (12)
Orissa	34.23	47.10	21.12	0.4151
Mean	31.95	44.87	18.80	
SD	8.89	9.95	8.00	
CV	27.82	22.17	42.55	

Source: Census Hand Book 1981.
Note: Figures in brackets indicate ranks.

The intra-group (male-female) disparities in literacy have been calculated with the help of a modified version of Sopher's Index as discussed in section 2. The result of the index is also given in Table 3. The value of the inequality/disparity index is the highest in Kalahandi district, i.e. 0.6629 and the lowest in Cuttack district, i.e. 0.3264. The districts exceeding the value of disparity index of the State (0.4151) are Kalahandi, Phulbani, Bolangir, Ganjam, Mayurbhanj, Koraput, Keonjhar, Sambalpur and Dhenkanal.

It has been observed that inspite of the overall increase in the literacy rates during 1981 (over 1971) vide Table 2 the intra-group disparities still tend to persist.

4.2 Cost-weighted Composite Index: In the preceeding section the intra-group disparities and inter-district disparities have been brought out on the basis of literacy rates only which is quite inadequate for disparity measurement. There are many other indicators of education to measure the inter-district disparities. An attempt has been made in this section to examine the inter-district disparities in educational development by constructing a composite cost-weighted index within the framework of the study which has already been discussed in section 2. The composite index is based on two important indicators, i.e. one is quantitative constituting enrolment ratio and the other being qualitative constituting cost per pupil. The result of the district-wise cost weighted composite index is presented in Table 4. The district-wise enrolment ratio and per pupil cost for different levels of education are presented in Annexures 1 and 2 respectively.

Table 4 District-wise cost weighted composite index of educational development

Districts	Cost weighted composite index	Rank order
Balasore	19.16	2
Bolangir	13.29	7
Cuttack	31.97	1
Dhenkanal	14.47	5
Ganjam	13.54	6
Kalahandi	9.79	11
Keonjhar	9.48	12
Koraput	9.05	13
Mayurbhanj	14.81	4
Phulbani	11.79	10
Puri	15.98	3
Sambalpur	12.09	9
Sundargarh	13.38	8

The cost-weighted composite index for Cuttack district is the highest and that for Koraput is the lowest which indicates clearly that Cuttack is the most developed and Koraput is the most backward district. Hence, it is further evident through cost weighted composite index that there exists glaring disparities in educational development between different districts of the state.

Finally, the classification of districts on the basis of the indices is presented in Table 5. The districts are divided into three stages of development of education, i.e. (i) developed, (ii) average and (iii) backward.

Table 5 Classification of districts according to the indices

Indices	Relative position of districts according to educational development		
	Developed	Average	Backward
Literacy index	Puri Cuttack Balasore Dhenkanal Sundargarh	Sambalpur Ganjam Keonjhar Phulbani	Koraput Kalahandi Bolangir Mayurbhanj
Cost-weighted composite index	Cuttack Balasore Puri Mayurbhanj Dhenkanal	Ganjam Bolangir Sambalpur Sundargarh	Koraput Kalahandi Keonjhar Phulbani
Common districts in the two indices	Puri Cuttack Balasore Dhenkanal	Ganjam Sambalpur	Koraput Kalahandi

Source: Table 2, Table 3 and Table 4.

It is evident from Table 5 that both the approaches of disparities yield more or less similar results. The districts are classified into three categories of development. In the first group, the districts of Puri, Cuttack, Balasore and Dhenkanal are included. The second group includes Ganjam and Sambalpur which are considered as average districts and the third category (backward) includes Koraput and Kalahandi district.

5. Lessons for Reduction of Inter-District Disparities in Educational Development

On the basis of the findings/experiences in the preceding section about the inter-district disparities in educational development, we propose some measures to reduce such disparities in this section.

5.1 Need for Inter-Regional Planning: The socio-economic characteristics of India are largely heterogeneous and Orissa is no exception to it. They differ from one State to another and even within the State they differ from district to district, from Tehsil to Tehsil and from one block to another and so on. In this connection the national planning does not solve these regional problems due to its inherent regional diversities. Hence, the national planning fails to achieve balanced regional development. The regional planning is the only alternative to achieve this objective. Even the regional planning differs for different regions and for different sectors, i.e. planning for education might not be the same as planning for agriculture or industry. Therefore, keeping in view the socio-economic and geographical characteristics of the region, appropriate regional planning for education is required. This regional/spatial planning coordinates the local plan and national planning coordinates the regional planning. Hence, in order to remove inter-district disparities in educational development in Orissa, inter-regional planning for education is called for where the district is to be considered as a region.

5.2 Data Base: In a backward State like Orissa, we suffer not only from financial poverty but from the poverty of data. Strong data base is needed to understand the social, economic and demographic factors responsible for educational growth in each district of the State. Research teams by leading educational organisations, like NIEPA, New Delhi, with the help of individual researchers should take the initiative to remove such deficit in data base.

5.3 Irrelevance of Uniform Programme for Universalisation of Primary Education: An uniform programme for universalisation of primary education in all the districts of Orissa is unlikely to succeed. The motivation of parents for not to send their children to school still exists in backward and tribal dominated districts like Kalahandi, Phulbani, Koraput and Bolangir. Hence, special attempts should be made to educate and motivate the parents about the need and value of educating children. A disaggregative programme of primary education be made according to the peculiarities of the respective districts for which it is made. Further, the universalisation of primary education is not possible unless and until the child labour is abolished.

5.4 Making Accessibility to Educational Institution: It is necessary to give priority to provide sufficient facilities to the students of backward districts to have an access to the educational institutions. The times of the school and availability of the teacher should be made according to their convenience. Free education, school uniform and lunch should be provided to them. This will help in removing imbalances in educational development between the backward and developed districts.

5.5 Efficient Allocation and Proportionate Distribution of Funds: The cost-weighted composite index of this study shows that there are regional disparities in the levels of educational development due to inefficient and disproportionate allocation of funds among the districts. The proper allocation of resources is expected to reduce regional imbalances in educational development. Therefore, the allocation of the limited resources among the districts between different levels of education should be made on the basis of need and requirement of the concerned district. The distribution of resources should be proportionate only when larger share of resources is to be diverted to the districts of Kalahandi and Koraput. Next to these preference is to be given in respect of funds to the average district like Sambalpur and Ganjam. The developed districts share of resources should be restricted. Further, the allocation of funds should be based on the capacity and ability of the district to utilise and absorb the funds properly.

6. Conclusion

The foregoing analysis indicates that there are inter-district disparities in educational development in Orissa. The districts have been classified as developed, average and backward on the basis of literacy index and cost-weighted composite index. The intra-group inequalities (between male and female) in education also exists in the State. Therefore even though the policies and programmes adopted by the government from time to time have improved the development of education no doubt in the State, but still there exist inequalities in educational development between different districts of the State. Keeping in view the socio-economic-cultural and geographical background of the districts, appropriate education policy need to be implemented in a regional perspective. Hence an integrated approach to educational planning is called for to bring out regional balance in educational development in Orissa.

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Annexure 1 Enrolment ratios in Orissa 1988-89

Districts	Elementary	Secondary	Higher
Balasore	84.26	16.85	2.96
Bolangir	68.01	5.30	0.96
Cuttack	92.30	27.32	3.27
Dhenkanal	85.44	9.16	1.89
Ganjam	71.50	14.74	2.20
Kalahandi	65.48	5.72	0.59
Keonjhar	69.68	7.54	1.15
Koraput	66.75	6.52	0.65
Mayurbhanj	70.70	8.68	1.28
Phulbani	75.73	5.75	0.61
Puri	89.48	24.45	3.34
Sambalpur	82.70	8.85	3.01
Sundargarh	84.04	10.17	2.57

Annexure 2 District-wise expenditure on education per student in Orissa 1988-89

Districts	Expenditure (Rs.per annum)		
	Elementary	Secondary	Higher
Balasore	60.37	259.57	205.53
Bolangir	74.08	238.94	173.54
Cuttack	149.60	269.28	270.71
Dhenkanal	53.13	247.64	194.84
Ganjam	65.90	318.72	370.77
Kalahandi	71.67	236.36	345.40
Keonjhar	54.16	233.27	337.38
Koraput	58.69	232.52	332.45
Mayurbhanj	84.80	253.00	235.50
Phulbani	77.77	157.36	359.69
Puri	80.82	298.15	669.67
Sambalpur	59.15	247.07	371.15
Sundargarh	43.27	168.77	236.56

TWENTY TWO

Regional Disparities in Educational Development in Gujarat: Planning Strategies for Removal of Disparities

Anjana P. Desai

I. Nature of Disparity

The issue of educational development is so basic and fundamental to human life that its differential levels have created disparities among "people" and "places". The concept of "developing" and "developed" regions or nations has emerged due to differential growth of education among people. The concern over the eradication of poverty or the socio-economic disparity has a close link with the issue related to the development of human resources. It has been noticed over time and space that the effect of growth has not reached the people at the grass-root level, if they are not capable of absorbing it. Lack of education makes people to remain in darkness for centuries together without any diffusion of knowledge of science and technology.

Differential level of education does not allow people to communicate economically or socially. Materialistic needs differ from group to group, from region to region. Things produced in different societies may not be of similar quality and those may not be complementary to each other. Economic trade or exchange of goods, in that case, may not be possible. Eventually economic disparity will emerge between regions or nations. Similarly, social barrier can also be created if people have different levels of education. People with a certain level of education tend to be located in a certain area, where "social space" merge with geographical space, giving rise to a region of its own characteristics. As the spatial distribution of physical resources is uneven in nature, so is the distribution of human resources. Hence the systems of interactions between "man and man" and between "man and environment" are bound to differ, giving rise to regional disparity. Hence a rural, agricultural system will differ from an urban, industrial one, having people of different educational levels and style of life in a particular region.

It is important to understand that this disparity is not just regional, it is deeply rooted in the family also. It has been noticed through various studies that, disparity exists right at the household level. The disadvantaged groups vary by age and sex. Nearly 50% of the population, that is females, are not properly educated. The prevalence of illiteracy is very high among them; similarly, a large proportion of old people (60 and over) and young children (5-14 year) are illiterate. Communities by caste, tribe and religion have remained at the bottom, both in the levels of education and in the ladder of socio-economic status.

The nature of disparity in educational level is very large and massive in scale. It touches all strata in our society by age, sex, caste, community and place of residence (urban versus rural). Hence the strategy to remove such a disparity cannot be tackled singularly. It needs a comprehensive planning of both short and long terms at a grass root level with the involvement of people themselves.

This paper intends to analyse the following objectives:

1. Bring out the disparity in educational level by age, sex and community in Gujarat;
2. Analyse the levels of education by district, with special reference to children of 5-14 year of age group;
3. Correlate socio-economic factors that are responsible for the disparity;
4. Bring out a strategy for the removal of disparity in education.

It mainly depends on the data of the Census of 1981, and at places, also 1971, in the state of Gujarat. The above issues have been analysed through cartographic and statistical techniques to arrive at certain conclusions.

II. Levels of Education in Gujarat by Age and Sex

More than 50% of the total population in Gujarat are illiterate in 1981. The disparity is more by age and sex. Among males, 46% are totally illiterate and 22% are literate without any educational level; 20% are in the group of primary and middle school level; 9.5% are in the level of matric and higher secondary, while only 2.5% are having diploma or graduate degree. Among females of all ages, 68% are totally illiterate; 15% are literate without any educational level; nearly 12% are in the group of primary and middle school and 4.5% have matric or higher secondary certificate and less than 1% has diploma or graduate degree. Hence, the

Table 1A Males: levels of education by age in Gujarat 1981 (%)

Education level	Young 5-19	Active 20-34	Middle age 35-59	Old 60+	All ages
1. Illiterate and literate without educational level	70.79	46.05	66.64	78.81	68.09
2. Primary + Middle school	23.62	26.37	19.36	15.09	20.00
3. Matric and Higher sec.	5.44	20.89	10.42	4.88	9.45
4. Diploma, Graduate + over	0.15	6.69	3.58	1.22	2.46
	100.00	100.00	100.00	100.00	100.00

Table 1B Females: levels of education by age in Gujarat 1981 (%)

Education level	Young 5-19	Active 20-34	Middle age 35-59	Old 60+	All ages
1. Illiterate and literate without educational level	79.23	71.37	88.03	96.04	82.79
2. Primary + Middle school	16.68	15.36	8.53	3.43	11.73
3. Matric and Higher sec.	4.00	10.19	2.74	.45	4.54
4. Diploma, Graduate + over	.09	3.08	.70	.08	.94
	100.00	100.00	100.00	100.00	100.00

Source: Census of India, 1981, Series 5, Gujarat.

educational disparity by sex is a problem at the household level. This needs special attention to eradicate illiteracy among future mothers.

Classifying males and females by main four age-groups as young (5-19 year), active (20-34 year), middle-age (35-59) and old (60 +), and by four levels of education, it is noticed that, the rate of illiteracy is decreasing over time by age, except in the young group (Table 1). Among males, the percentage of illiterates and literates without any level has decreased from 78% among old to 66% among middle aged to 46% among active group. It is surprising to know that illiteracy is 70% among the young generation. At all educational levels, the most educated group is that of active one of 20-34 year of age. The trend is the same for females of these age groups. Hence, the educational disparity is seen among young group that needs special attention as they will be the future generation in our society, and this is the tender age where they have the highest potential to absorb new ideas and knowledge.

III. Levels of Disparity in Education by District

Spatial disparity has been measured in Gujarat over time (1971-1981) and by levels of education (literacy versus higher education) in Table 2.

During 1971-1981, the general level of literacy has increased nearly by 7%. The spatial pattern has remained almost the same over time, except for a few districts. Ahmedabad has retained its first rank in terms of literacy both in 1971 and 1981. Rajkot has improved while Surat has declined in position. Though the tribal district of Dangs is having very low level of literacy, it has improved its relative position over Panch Mahals and Banaskantha districts in 1981 compared to that in 1971. The core areas of Saurashtra and Gujarat Plain which are economically advanced, have a higher rate of literacy, while economically and geographically peripheral zones are marked with a low level of literacy (Figs. 1 and 2).

It is important to look into the distribution of higher levels of education for the sake of socio-economic development of people. The percentage of higher education is rather low, the range being 4.35% in the district of Ahmedabad and 0.38% in Banaskantha.

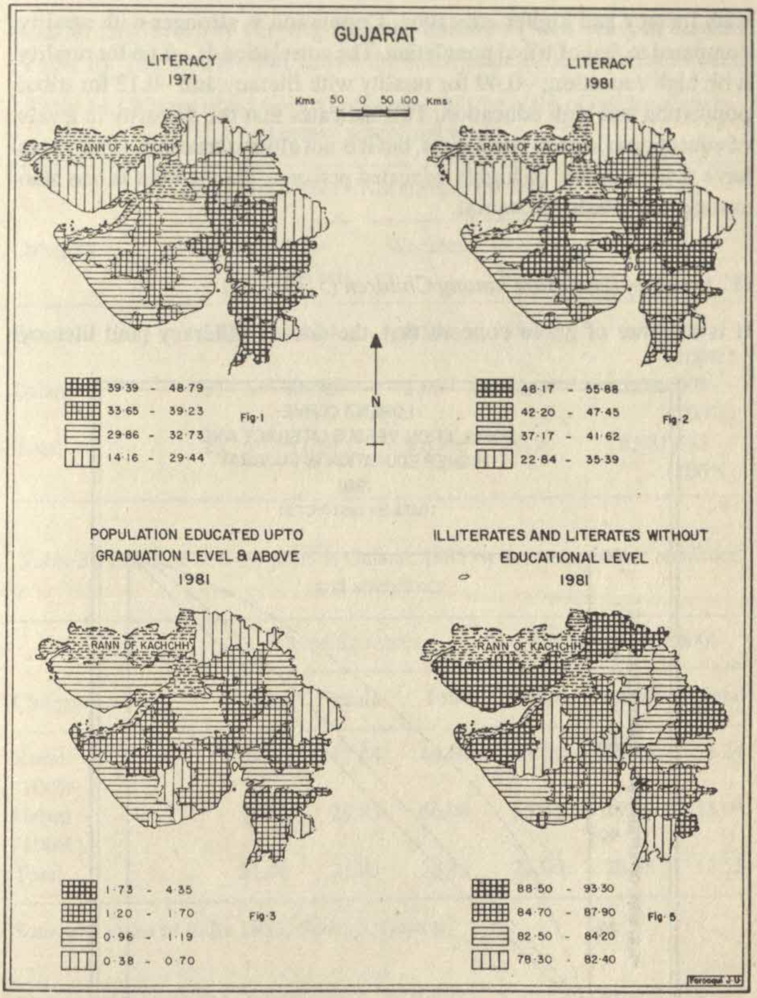
It is to be noted that the skewness or the concentration in distribution is more in the case of higher education compared to that of literates (Figs. 3 and 4). The index of concentration in Lorenz Curve is 0.37 for higher education. In case of literacy, the distribution is much more even: the index of concentration in Lorenz Curve is only 0.11.

Table 2 Percent of literates by districts in Gujarat (1971-1981) and percent share by district of Gujarat's literates, higher educated person and total population (1981)

Sl.	District	% literate to pop. of dist. 1971	% literate to pop. of dist. 1981	% share of total pop. 1981	% share of total lit. 1981	% share of higher educated 1981
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	Ahmedabad	48.79	55.88	11.37	14.59	28.63
2.	Kheda	42.53	49.25	8.84	9.92	8.73
3.	Gandhinagar	41.80	54.83	0.85	1.00	1.61
4.	Vadodara	40.67	48.17	7.50	8.30	12.26
5.	Surat	39.39	46.68	7.31	7.82	7.32
6.	Rajkot	39.23	48.91	6.14	6.85	6.63
7.	Mahesana	38.86	47.45	7.48	8.00	5.38
8.	Valsad	37.57	47.07	5.20	5.60	4.94
9.	Bharuch	35.73	44.57	3.80	3.89	2.62
10.	Amreli	33.65	42.20	3.16	3.05	1.23
11.	Bhavnagar	32.73	39.93	5.51	5.02	4.23
12.	Jamnagar	32.04	40.53	4.09	3.79	2.84
13.	Sabarkantha	31.14	39.75	4.40	4.01	2.58
14.	Junagadh	30.64	41.62	6.16	5.87	3.45
15.	Surendranagar	29.64	37.17	3.03	2.60	1.77
16.	Kutch	29.86	35.39	3.08	2.50	1.84
17.	Panch Mahals	22.82	28.14	6.80	4.38	2.77
18.	Banaskantha	15.76	22.84	4.89	2.58	1.08
19.	Dangs	14.16	29.96	0.39	0.23	0.09
				100.00	100.00	100.00

Source: Census of India, 1971, 1987, Series 5, Gujarat.
Total population 1981: 34,085,799; Males: 51.50%; Females: 48.50%

Ahmedabad and Vadodara districts had 41% share of Gujarat's total higher educated persons, but only 18% share of Gujarat's total population in 1981 (Table 2). High percentage of both literates and higher educated people are concentrated in Ahmedabad, Gandhinagar, Vadodara and Rajkot. Kheda being a progressive agricultural-cum-dairy district, has medium level of higher educated group. Surat has a contrasting situation. It has higher educated people, but its relative position of literates has declined. This could be related to its fast, industrial development which



has attracted uneducated, rural migrants including those from other states like UP and Maharashtra. Bhavnagar and Jamnagar have more educated persons, while Amreli and Bharuch have less in number in that group.

An attempt has been made to find out the statistical correlation between percentage of literates and percentage of higher education with that of rural population and tribal population in the districts of Gujarat. Both the variables, rural and tribal population, have a negative correlation with literacy and higher education. Correlation is stronger with rurality compared to that of tribal population. The correlation is –0.66 for rurality with high education; –0.49 for rurality with literacy and –0.12 for tribal population and high education. This indicates that the disparity in levels of education is high in rural areas, but it is not always true that, tribal areas have fewer number of highly educated persons. The number is less also among non-tribals in Gujarat.

IV. Levels of Education among Children (5-14 year)

It is a matter of grave concern that, the rate of illiteracy (and literacy

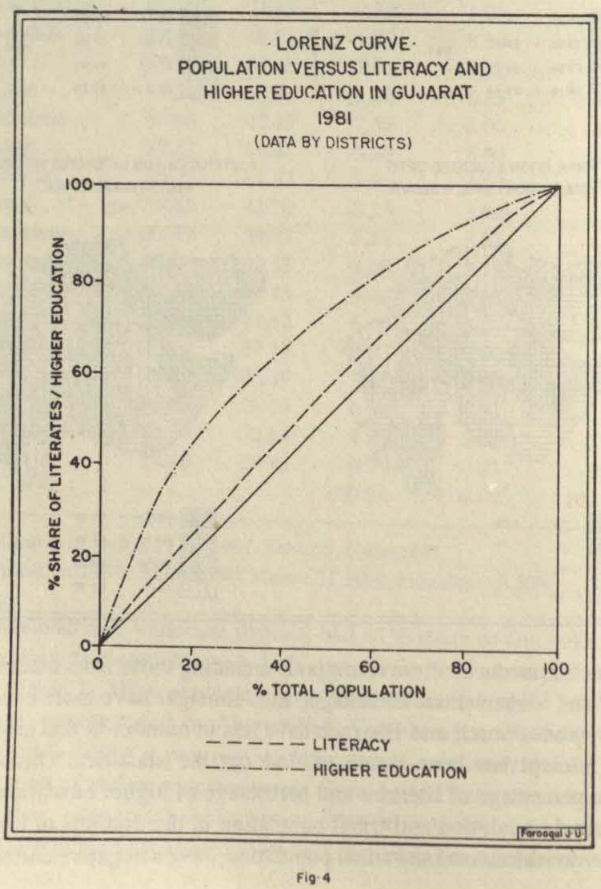


Fig 4

without any level), is very high among children (5-14 year) in Gujarat (Table 3). The distribution shows the same pattern of disparity as seen

Table 3A Children of 5-14 years in Gujarat, 1981 by place of residence attendance of school and work

	Attending school		Not attending school		Total
Category	Workers	Non-workers	Workers	Non-workers	(5-14)
Rural	.32	46.24	8.54	44.80	6,393,492 (100%)
Urban	.01	66.95	1.90	31.14	2,588,003 (100%)
Total	.23	52.20	6.63	40.9	8,981,495 (100%)

Table 3B Children of 5-14 years in Gujarat, 1981 by sex and place of residence and attendance

	Attending school			Not attending school		
Category	Male	Female	Total	Male	Female	Total
Rural (100%)	29.08	17.48	46.56	23.22	30.12	53.34
Urban (100%)	37.11	29.85	66.96	15.42	17.62	33.04
Total	31.40	21.05	52.45	21.00	26.55	47.55

Source: Census of India 1981, Series 5, Gujarat.

among literates in the "core" versus "periphery" zones of Gujarat. Banaskantha, Jamnagar, Panch Mahals, Dangs and Kutch districts have a high percentage of illiterate children, the percentage varying between 88% to 93% (Fig.5). A lower level of illiteracy among children is seen in Ahmedabad, Gandhinagar, Rajkot, Valsad and Kheda districts, the percentage varying between 78% to 82% in 1981.

Of the total male children nearly 60% have attended schools in 1981. The percentage of workers is very low among children who attended school. Among the non-attending children, nearly 18% are workers and

82%, that is 1.5 million, neither go to school nor to formal work. Most of these idle or informal-work-sector children are located in rural areas. Hence rurality has shown negative correlation with percentage of literacy.

In case of female children, the disparity is more skewed; only 44% of them are attending school. Nearly 90% of non-attending female children remain idle at home or help in household work in rural areas. Attendance is higher in urban areas (Table 3).

On a spatial level by district, Banaskantha and Panch Mahals show a high level of non-attendance of children (more than 60%), followed by Kutch, Surendranagar and Bhavnagar (Table 4, Fig.6). It is important to note that, the tribal district of Dangs has a low percentage of non-attendance to schools. In spite of low percentage, the district of Dangs has a very high level of illiteracy (and literacy without any level). This calls for

Table 4 Children (5-14 years): workers and non-attendance in schools, 1981, by district in Gujarat

Sl. No.	District	% of non-attendance w.r.t. total of 5-14 year	% of workers in non-attending group (5-14)
1.	Banaskantha	66.31	8.59
2.	Panch Mahals	63.88	12.21
3.	Kutch	54.41	6.18
4.	Surendranagar	52.47	8.31
5.	Bhavnagar	52.36	8.41
6.	Jamnagar	49.94	6.57
7.	Amreli	48.66	6.78
8.	Bharuch	47.94	9.64
9.	Surat	47.73	8.66
10.	Junagadh	46.30	5.61
11.	Sabarkantha	46.17	6.98
12.	Mahesana	46.02	4.46
13.	Vadodara	45.69	6.69
14.	Kheda	42.80	3.90
15.	Gandhinagar	40.51	2.05
16.	Valsad	40.48	7.12
17.	Rajkot	39.64	5.49
18.	Dangs	37.69	11.31
19.	Ahmedabad	36.20	2.92

Source: Census of India, 1981, Series 5, Gujarat.

an educational planning as the system seems to have a leakage, that is, attendance 'on paper' without actual learning.

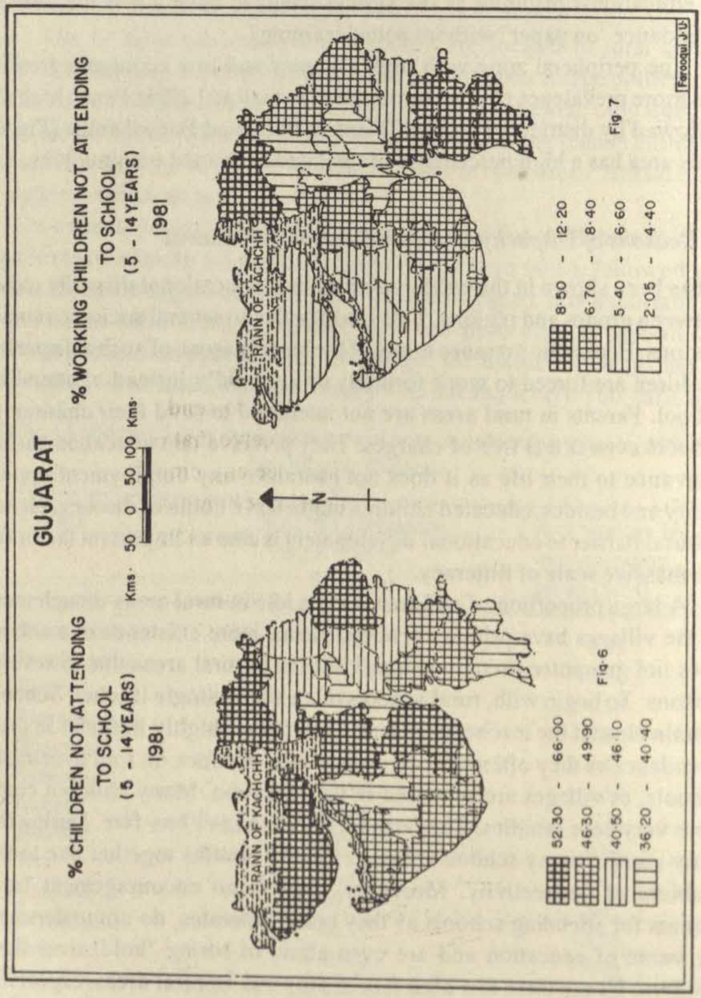
The peripheral zone with high illiteracy and low economic growth, has more prevalence of working children as high as 12% in Panch Mahals, followed by districts of Dangs, Bharuch, Surat and Banaskantha (Fig.7). This area has a high percentage of rural and backward communities.

V. Reasons of Disparity and Strategies for its Removal

It has been shown in the earlier sections that, educational disparity exists between groups and regions. This could be due to several socio-economic reasons. Economic pressure is one of the basic reasons of such a disparity. Children are forced to work formally or informally instead of attending school. Parents in rural areas are not interested to send their children to schools even if it is free of charges. They perceive that education has no relevance to their life as it does not guarantee any employment opportunity and besides, educated children might leave home or disobey. Hence cultural barrier to educational development is also an important factor for the massive scale of illiteracy.

A large proportion of children remain idle in rural areas though most of the villages have primary schools. Hence mere existence of a school does not guarantee literacy among children in rural areas due to several reasons. To begin with, rural schools often have a single teacher. Schools remain close if the teacher is absent. Children are highly irregular in their attendance as they often have to cover a long distance on foot to come to schools, as villages are scattered in their location. Many children come from very poor families. They cannot afford to have bus-fare. During the rainy season, many schools remain close for months together due to the problem of connectivity. Moreover, there is no encouragement from parents for attending schools as they being illiterates, do not understand the value of education and are even afraid of losing 'hold' over their children. Hence there is a high rate of drop out. In rural areas, especially in poor tribal areas, children go to schools for free mid-day meals. Schools remain closed after the mid-day meal is served. Hence, in the tribal district of Dangs in Gujarat, the attendance statistics of children is quite high, but it has not been much helpful in the reduction of illiteracy.

The educational level among female children is extremely low as parents in rural areas do not believe in educating females, as they might not get 'grooms' for marriage. The impact of this cultural barrier is a serious one. Illiteracy among female children will result in illiterate


GUJARAT
% CHILDREN NOT ATTENDING TO SCHOOL (5 - 14 YEARS) 1981
% WORKING CHILDREN NOT ATTENDING TO SCHOOL (5 - 14 YEARS) 1981
Kms 50 0 50 100 Kms
N
RANN OF KACHCHH
RANN OF KACHCHH
52·30 - 66·00
46·30 - 49·90
40·50 - 46·10
36·20 - 40·40
8·50 - 12·20
6·70 - 8·40
5·40 - 6·60
2·05 - 4·40
Farooqui J·U·

Fig·6

Fig·7

mothers of the future generation. An educational environment cannot be created by illiterate mothers at home.

The strategy for removal of disparity cannot be a simple one as it exists at all levels by household, community, place of residence and region as a whole. Reason's are deeply rooted to poverty, cultural barriers, improper management and training offered in rural schools.

It is obvious that, a comprehensive, integrated, long term planning for eradication of poverty is necessary so that children can be spared from helping in farms or doing jobs to earn extra money for the family. A cooperative system is necessary in all villages so that each household can get involved in their own work and the total labour can be put together in an organised system. This will raise the economic condition of rural areas and eventually children can afford to go to schools.

Economic upliftment will be useful for socio-cultural upliftment. People will gradually realise the value of education both to male and female children. In order to encourage female education, the government of Gujarat has made it free for all females from the lowest to the highest level. This has not yet helped to change the perception of rural parents regarding the desirability of education among female children.

A comprehensive rural programme of educational awareness is necessary among parents so that they really understand the basic need of education in our lives. Syllabus needs to be relevant to the poeple of a particular region and it should be practical in nature so that it is job-oriented. Simultaneously job opportunity of skilled type needs to be generated. The connection of jobs of schooling can only change the perception of rural parents in a positive manner.

The target groups like females, children, old persons, backward communities should be given priority to bridge the gap in the scale of disparity. Audio-visual programmes and arrangement of educational exhibitions by these groups of people can bring a sense of enthusiasm among them. Along with these short term programmes, the quality of teaching can be improved with more number of teachers, teaching aids and good libraries and laboratories, arrangements of sports, vocational training courses, and teachers' training.

The aim of educational strategy cannot be restricted only to literacy. Higher level of education should be encouraged with more vocational colleges and agricultural universities. A large proportion of residents in Gujarat is engaged in business, trade and commerce. Management oriented courses can be helpful to them. Degree-oriented education may not be meaningful to them. The policy of education should be relevant to people and place which will eventually remove educational disparities bringing everyone on a common platform of socio-economic interactions. In short, economic upliftment, removal of cultural barriers, social involvement and management of relevant education can be considered as various dimensions of an integrated educational strategy for removal of disparities in our society.

TWENTY THREE

Spatial Disparities in Educational Development in Marathwada with Special Reference to Scheduled Castes: Lessons for Future Planning

Swapna Banerjee Guha

1. Introduction

Marathwada region in Maharashtra located at the central part of the state, covers five districts: Aurangabad, Bid, Parbhani, Nanded and Osmanabad. Administratively it is coterminous with Aurangabad Division. It has a total population of 9,728,782 in 1981, i.e. 15.50% of the total population (62,784,171) of Maharashtra. The region remained under the Muslim rule for a long time. From mid 13th century to mid 20th century it was ruled by several dynasties and the periods were marked by political instability and economic stagnation. Resultantly, a perpetual social and economic backwardness has been an associated feature of Marathwada from which it has not been able to get itself freed even today.

Until 1948 Marathwada region was a part of the erstwhile Hyderabad state ruled by the Nizam during whose reign the region had to face a great deal of political and economic oppression. The general educational development also was hampered side by side to a large extent. At the turn of the present century there was hardly any school facility even at the taluka level; facilities of high school and college existed only in some major cities. Further, although language of the majority was Marathi, the medium of instruction in all government schools was Urdu from Class-III onwards. The local Marathi population could not, therefore, get the benefits of whatever meagre educational facilities that were there.

During 1930 when the liberation struggle gathered momentum throughout the country, Marathwada region was no exception. As the activities of the political activists became intensified, the state officials became more and more oppressive. As many of the activists were associated with schools, the officials raided schools indiscriminately and many schools had to be closed down because of this harassment.

The revolt of the local population against the Nizam was spontaneous. 1948 police action in Hyderabad brought an end to the oppressive rule of the Nizam. Marathwada region with its five districts became a part of erstwhile Bombay state in 1956. Later, on 1st May 1960 it came under the newly formed state of Maharashtra (Fig.1).

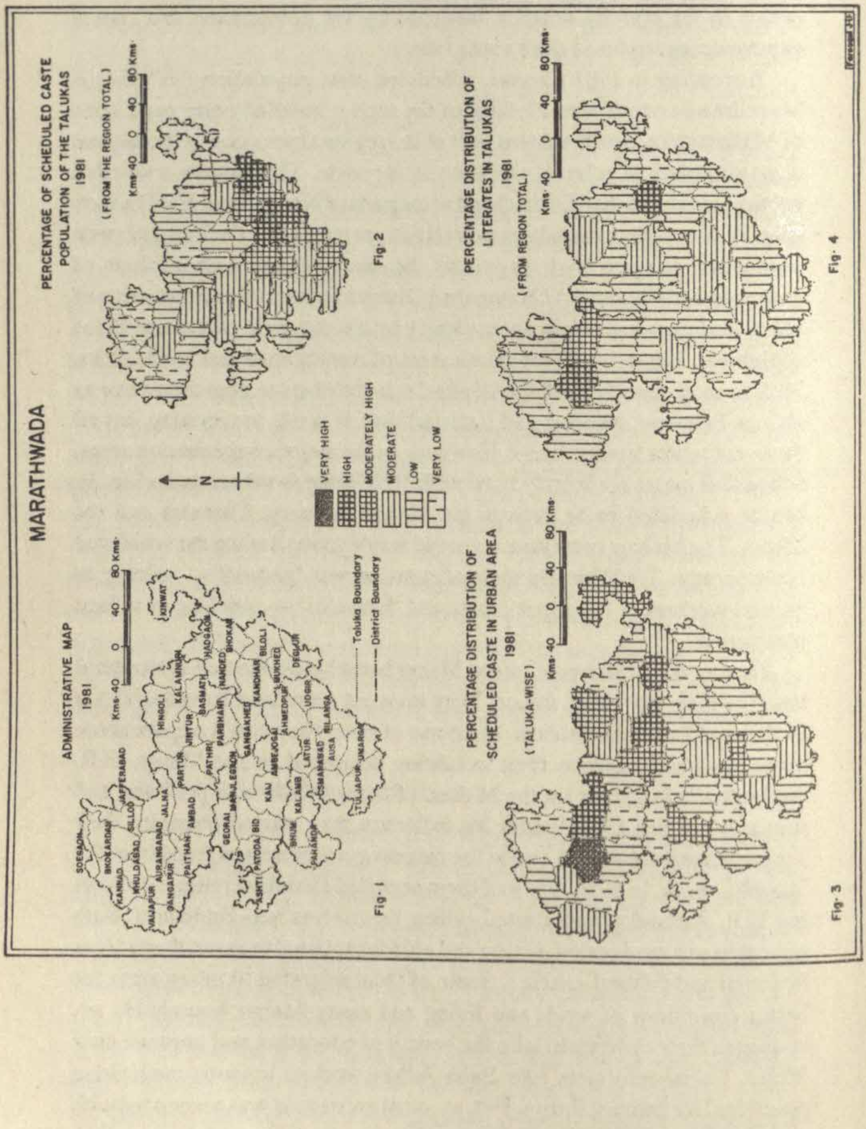
Liberation from foreign rule, however, did not bring about much change in the social and economic conditions of the people. The development that took place was slow and uneven. In comparison to other regions of Maharashtra, viz. Bombay, Pune or Vidarbha, Marathwada region lagged behind. Disparities within these regions intensified. Vidarbha region that was as backward as Marathwada, attained much progress by mid-seventies surpassing Marathwada to a considerable extent. Spearheaded by the students and supported by all strata of the society, the 'Vikas Andolan' of 1974 in Marathwada was an expression of wrath of the people on the continuous neglect from the part of the government and the growing disparities. The movement ended with few promises and compromises from the government which largely remained on paper (Punalekar, 1981). The region was promised a special share in the state's development outlays to clear the development backlog. Subsequently, however, the Government did not stand by the promises. However, due to introduction of a few irrigation projects, growth pockets were created in this backward region and cultivation of cash crops increased the economic power of the big farmers. Political power that already had rested with them got further strengthened and Panchayat System did not alter the situation much.

2. *Scheduled Castes in Marathwada*

Caste network has always remained a powerful factor in the society of the Marathwada region. Especially due to economic backwardness, the manifestations of caste alignment here are ferocious and varied. Caste status still determines the social status of individuals and due to lack of economic development these ascribed positions are never questioned by any segment of the society in a big way. Largely the region has remained socially immobile without any large-scale social reform movement. Caste system survived with its traditional norms and beliefs with extreme rigidity in some areas of Parbhani, Bid and Aurangabad districts. However, with the introduction of development schemes disparity intensified in society and space; higher and middle castes like Marathas and Vanjaris also got vertically segregated giving rise to strains in the caste attachment. The poor among them were forced to work side by side with the scheduled castes in the scarcity scheme launched by the government and started experiencing strains in their caste values.

According to 1981 Census, scheduled caste population (967,554) in Marathwada constitutes 21.60% of the total scheduled caste population of Maharashtra. South eastern part of the region shows one of the highest concentrations of scheduled castes in the state. This covers a sizeable portion of Osmanabad District and some parts of Nanded and Bid Districts (Fig.2). From the total taluka population, percentage of scheduled caste population is again high in mostly the same talukas with addition of Tulzapur and Umarga of Osmanabad District. Pattern of concentration of scheduled castes in urban areas clearly brings out their placement in the settlement, hierarchy. In the urban areas of Aurangabad and Jalna taluka, 30% to more than 50% of the talukas' scheduled caste population live as also in Parbhani, Nanded and Latur talukas. It needs mentioning that all these are taluka headquarters. However, in the major concentration areas, scheduled castes are largely rural with 10% living in urban areas (Fig. 3). Major scheduled caste groups are Mangs, Mahars, Chamars and the Dhors. The Mahars constitute a second major group among the scheduled caste groups. Traditionally their occupation was 'gaonki' — serving as menial workers of the upper castes and 'kotwalki' — working as village watchmen.

During the British rule, some Mahar households secured agricultural land for their 'kotwalki' duties. They even got some land from the Nizam in Bid and Parbhani districts. In course of time, they could acquire some more land and improve their condition compared to the Mangs. B.R. Ambedkar's influence on the Mahars of Marathwada was profound and pervasive. Since 1930s under his influence they started changing their socio-cultural conditions and in the process got themselves freed from the 'gaonki' work. In 1956 many of them accepted Buddhist religion following B.R. Ambedkar and started calling themselves neo-Buddhists. Both educated and uneducated, young and old Mahars tried to assert themselves in social and cultural spheres. Some of them migrated to urban areas for better conditions of work and living and many Mahar households encouraged their children to take the benefit of education and improve their future. Social reformers like Baba Adhav worked towards eradicating practices like untouchability. But, as social awareness was associated with spread of education, he was successful more in towns of Aurangabad,



MARATHWADA

ADMINISTRATIVE MAP
1981

Fig·1

PERCENTAGE OF SCHEDULED CASTE
POPULATION OF THE TALUKAS
1981
(FROM THE REGION TOTAL)

Fig·2

PERCENTAGE DISTRIBUTION OF
SCHEDULED CASTE IN URBAN AREA
1981
(TALUKA-WISE)

Fig·3

PERCENTAGE DISTRIBUTION OF
LITERATES IN TALUKAS
1981
(FROM REGION TOTAL)

Fig·4

Jalna or Ambejogai.

However, it became apparent that the Mahars among scheduled castes became relatively better-off and socially mobile in comparison to Mangs or Dhors. Thus it is apparent that the influence of B.R. Ambedkar remained confined largely among the Mahars.

3. Educational Development in Marathwada

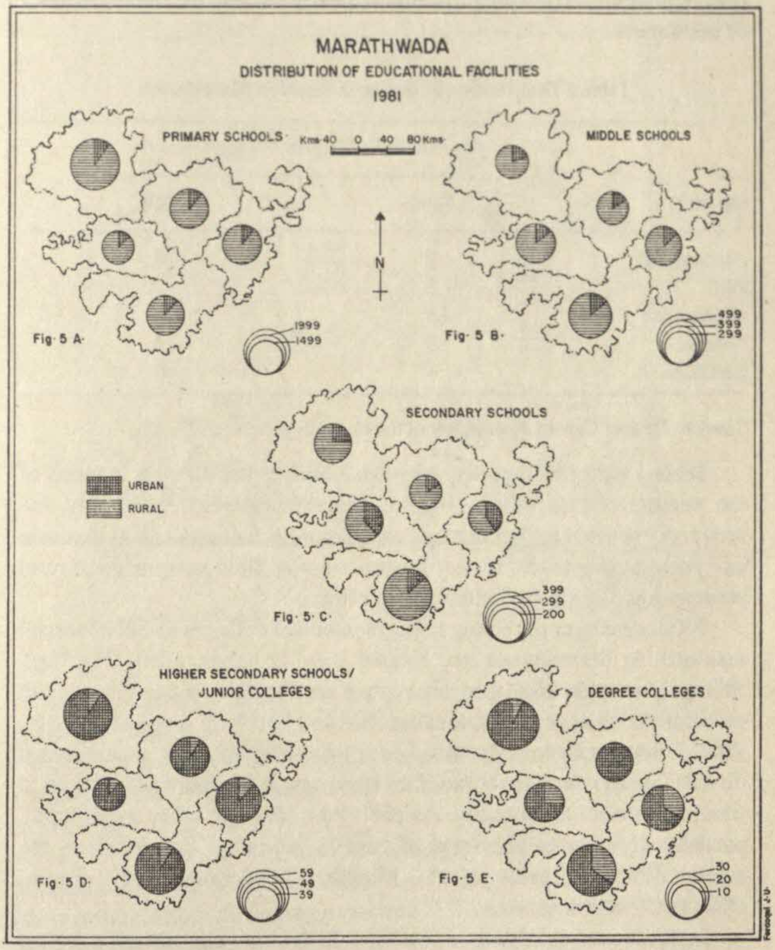
Although 15.06% of the total population of state of Maharashtra are in Marathwada region, percentage of literates from this region to total literates of the State is only 10.82%. Within Marathwada, concentration of literates is the highest in Aurangabad district (26.50%) followed by Osmanabad (24.41%) where basic education since Nizam's rule is wellspread. Aurangabad district on the other hand, having the only University of the region — the Marathwada University and a number of colleges, has larger share of higher educated (Fig.4). The above pattern of percentage share of the talukas from the total literates of the region, however, suggests that disparity is higher in Aurangabad district where besides Aurangabad and Jalna talukas, all other talukas have very low share of literates. Jalna again lags much behind Aurangabad in terms of educational facilities.

In 1953 when states were reorganised on the basis of a common language, it was decided that outlays and resources in each region of Maharashtra would be distributed according to the population share of each and special mention was made about the backwardness of Marathwada. However, the above framework was not followed later especially after the 3rd Five Year Plan (Gogate, 1986). Marathwada thus lagged behind other regions by at least a time lag of 18-20 years. In 1981 the average literacy rate in Marathwada was 32.90% compared to 46.90% in Pune, 45.90% in Vidarbha and 58.84% in Bombay division. The average literacy rates of Maharashtra in that year was 47.02. In female literacy also the picture was bleak. In Marathwada in 1981 the average female literacy rate was 18.21% while in Pune, Vidarbha and Bombay divisions it was 33.77%, 33.88% and 42.97% respectively. The average female literacy rate in Maharashtra in 1981 was 34.63%. In the course of 20 years from 1961-81, the literacy rate in Marathwada only increased by 23.81%, a meagre 1% rise in a year. Growth rate of female literacy was further slow — 15.91% in 20 years. Although adult literacy and like programmes are being launched by the state government and social workers' organisations, not much has been achieved.

Four major factors are closely associated with the general educational backwardness of Marathwada. They are (1) lack of infrastructure, (2) lack of conductive atmosphere, (3) lack of trained teachers and (4) lack of social and cultural awareness to make use of the already existing facilities. These factors are present at all levels (Gogate, 1986).

3.1. Primary, Secondary and Higher Secondary Education in Marathwada: Infrastructure for primary education is very poor in Marathwada with the presence of all the above factors in a considerable degree. However, compared to other levels of education in the region, primary education has experienced a wider spread over space especially in the rural areas. Number of schools is the maximum in Aurangabad district (2237) of which 93% are located in rural areas commensurate with larger percentage of rural population (78%) (Fig.5a). Similarly in other districts also primary school facility is found more in numbers in the rural areas. In Bid it is 90%, Osmanabad 94%, Nanded 93% and in Parbhani 95% compared to the rural population of 85%, 85%, 81% and 83% respectively. In the case of middle schools also, pattern of distribution is more or less the same, i.e. concentration in rural areas — 78% of the middle schools in Aurangabad, 90% in Bid, 90% in Osmanabad, 88% in Nanded, and 82% in Parbhaniare are located in villages (Fig.5b). Spatial distributional pattern starts changing as the level increases. Secondary schools although are located primarily in the rural areas, percentage share of the urban areas is not as low as it was in the former. In Aurangabad 76%, in Bid 86%, in Osmanabad 85%, in Nanded 71% and in Parbhani 78% of the secondary schools are located in rural areas (Fig. 5c). Since 1975 stability has come in the structure of secondary education in Marathwada, yet rural-urban difference still exists with the latter having better infrastructure, management and teaching staff. Ratio between boys and girls at this level is 3:1.

The spatial pattern entirely changes as one comes to the higher secondary level. Urban areas have a lion's share of the higher secondary schools and junior colleges. In Aurangabad district 97%, in Bid 89%, in Osmanabad 92%, in Nanded 90% and in Parbhani 78% of these institutions are located in urban areas (Fig.5d). During 1976-77 strength of students at higher secondary level almost doubled than in the previous years. In 1984-85, 9.51% of the total students at this level of the state were studying in Marathwada. Percentage of female students was very low — only 5%. Disparity also exists between rural and urban institutions with the latter having better infrastructure, equipments and trained teachers.



3.2. Higher and Technical Education in Marathwada: Out of every 55 students who pass the secondary level in Marathwada, when even 20 do not go to the higher secondary level, it can be easily assumed as to what meagre number would go for higher education. From the total number students of Maharashtra at this level, only 8% hail from Marathwada. In terms of intra-regional pattern, rural-urban disparity at degree college level is pronounced not only in terms of quality but also in terms of number of institutions.

Table 1 Distribution of degree colleges in Marathwada

	Number of degree colleges	
Districts	Rural	Urban
Aurangabad	1	20
Bid	2	7
Osmanabad	10	19
Nanded	5	13
Parbhani	–	6

Source: District Census Handbook of the above Districts, 1981

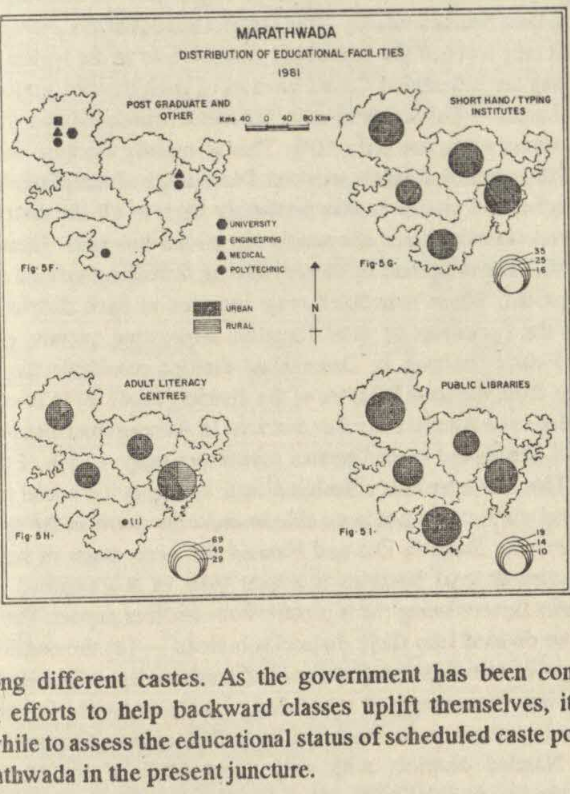
Table 1 indicates that disparity exists among the districts in terms of the number of institutions (Fig.5c). Marathwada region has only one university situated in Aurangabad city. Proportion of students at graduate and postgraduate levels is very low and among them percentage of rural students and female students is further less.

Polytechnics, engineering colleges, medical colleges and commercial institutes in Marathwada are located only in urban areas (Fig.5f,g). Strangely enough, adult literacy centres are also few in rural areas with no centre in villages of Osmanabad, Bid and Parbhani districts (Fig.5h). Public libraries have only urban locations (Fig.5i). It is apparent that distribution of educational facilities is uneven in Marathwada — both in terms of number and quality. As education, like any other social input, partially depends on the level of general economic development, the uneven economic development in Marathwada becomes largely responsible for the above pattern.

In the above backdrop we shall now look at the educational status of scheduled castes in Marathwada and the spatial disparity in their development at different levels.

4. Spatial Disparity in Educational Development of Scheduled Castes in Marathwada, 1981

It has been seen that the development of educational facilities has not occurred in an even manner in Marathwada. Disparity lies on space, between rural and urban areas and in structure—between male and female



or among different castes. As the government has been consciously making efforts to help backward classes uplift themselves, it will be worthwhile to assess the educational status of scheduled caste population in Marathwada in the present juncture.

4.1. Spatial Pattern of Literacy: According to 1981 census, Marathwada accounts for only 13.47% scheduled caste literates from their total in Maharashtra, although having a share of 21% of the total scheduled caste population in the state. Within the region not much variation exists among the districts of Aurangabad, Bid and Nanded in their share of scheduled caste literates (16.69%, 17.20% and 18.34% respectively). Osmanabad, however, records quite a high share (38.43%) due to the spread of basic literacy since Nizam's time. Parbhani has the lowest share of Scheduled Caste literates of the region. Intra-district variations bring out some important facts. In Aurangabad district, Aurangabad is the only taluka with a moderately higher percentage share while in Osmanabad, Udgir, Ahmadpur, Nilanga and Latur Talukas are having moderately high to high % in share. In Bid district, Kaiji and Ambejogai talukas are a little better placed than others. In Nanded district Billoli taluka accounts for a greater percentage primarily because of a much larger size of scheduled caste population than Nanded taluka — the District headquarters. However, the general literacy level of the scheduled castes is low in the region (Fig.6). From among the Scheduled Castes literates of each district, majority live in the rural areas — Talukas with more than 50% scheduled castes literates living in urban areas are only 10%. This is mainly because the major section of the scheduled castes are rural. Percentage of male literates from the total scheduled castes is also uniformly high in all the districts and intra-district variations are not much. No taluka has male literacy rate below 70%. Lack of spread of literacy among female scheduled castes is hence apparent. When scheduled caste literates in each district are assessed in the backdrop of total literates, interesting picture emerges. Scheduled caste literates in Osmanabad district constitute the highest percentage from the total literates of the district (10.47%) in comparison to scheduled caste literates in other districts. In Aurangabad district on the other hand, scheduled caste literates constitutes only 4.13% of the total literates. This indicates that scheduled caste as a specific social group in Aurangabad district has not been able to make its mark in the sphere of average literacy. Even in Bid and Nanded the percentage of scheduled caste literates in total literates is higher than in Aurangabad (Fig.7). Intra-district figures bring out a picture from another aspect. The region seems to be divided into three distinct sub-areas — (a) the northern part stretching over Aurangabad, Parbhani and northern tips of Nanded taluka with very low percentage of scheduled castes among the literates, (b) Central and southern parts stretching over Bid, eastern Osmanabad and southern Nanded districts with only about 10% of the literates as scheduled castes, and (c) south-eastern part covering part of Osmanabad and Nanded district where the percentage of scheduled castes from the total population commensurates with the percentage of scheduled caste literates from the total literates.

4.2. Educational Level of Scheduled Castes in 1981: In 1981 percentage of enrolment of scheduled caste children of school going age was 40. Percentage of female children remaining at home was more. In small villages with population of 1000-2000, enrolment rate was further lower. Average dropout rates in 1981-82 were 14.4% while absentee rates were 10.7%. In majority of the cases 25% of the children leave school in the first year only. Stagnation rate of boys in one class is 5.9% at primary level while for girls it is 7.2%. Lack of awareness among the scheduled castes about education stems from their age-old socio-economic status and lack of communication with the mainstream population.

In 1981 there were 60,986 scheduled castes with primary education in Marathwada, i.e. 12.5% from the total number of scheduled castes having primary level education in Maharashtra. In all other levels also the percentage share of Marathwada is low given the % share of schedule castes in the region.

Table 2 Levels of education of Scheduled Castes in Maharashtra and Marathwada

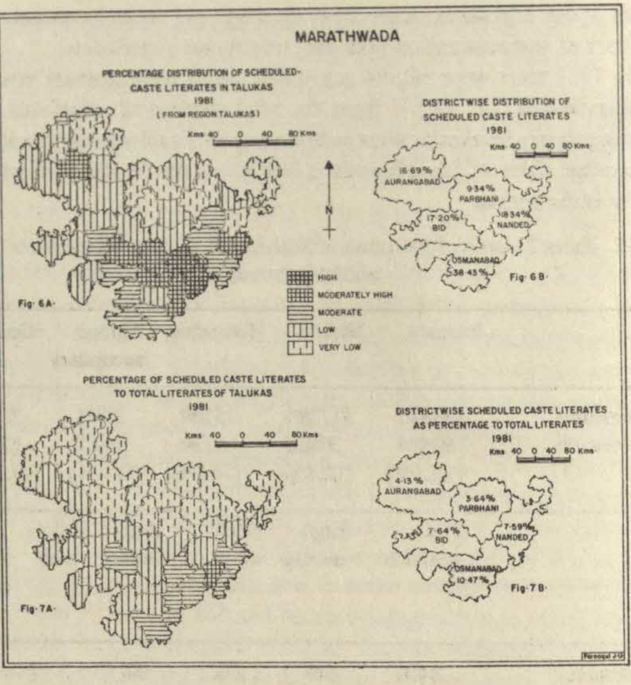
	Primary	Middle	Secondary	Higher secondary	Graduate
Maharashtra	486645	317380	15186	3591	3754
Marathwada	60986	39406	6139	1612	1524
	(12.5%)	(12.4%)	(10.5%)	(11.4%)	(18.2%)

	Post-graduate	Engi-neering	Medi-cal	Agri-culture	Veteri-nary	Teach-ing diplo-ma
Maharashtra	2400	649	773	66	7	1147
Marathwada	454	78	82	16	2	191
	(18.9%)	(12.0%)	(10.6%)	(24.2%)	(28.6%)	(16.7%)

Source: Census of India, 1981, Series 12, Maharashtra
Parts IX (ii), Special Tables for Scheduled Castes

It seems that at postgraduate level, the percentage is more because of the location of Marathwada University in the region. The percentages are also comparatively higher for agriculture and veterinary degrees. Within the region, actually, percentage of scheduled castes is more at lower levels from the region's total aggregate which however accounts for a much lower % from the state total.

Within the region Osmanabad district systematically has the higher percentage of scheduled castes from the region total from primary to graduate level. The pattern changes from post graduate level onwards where Aurangabad district accounts for the highest percentage. Scheduled Castes with engineering degrees are again more in Osmanabad. Besides these two districts, Bid and Nanded are at a similar level where the percentage of scheduled castes with the above educational qualifications



are moderate. Parbhani is having quite a low status in almost all the levels excepting, for scheduled castes with agricultural degree (Fig.8a, b). The rural-urban differences also are projected in a particular manner. Upto middle level, scheduled castes are primarily rural and dominate the number — the educational institutions at this level are also concentrated in rural areas which we have seen earlier. From the secondary to graduate level scheduled castes are mostly rural in Bid, Nanded and Osmanabad (their percentage ranges from around 60-70%). While in Parbhani and Aurangabad they are mostly urban. From postgraduate level onwards the distribution of scheduled castes at different levels of specialised and technical courses are only in urban areas. However, in both rural and urban areas a common feature exists. There is a sharp fall in the absolute number of scheduled castes from the middle level to the secondary level indicating clearly the dropouts with the rise in levels. It is thus apparent that in all the five districts of Marathwada a very small percentage of scheduled castes cross the secondary level (Figs. 9a and 9b).

So far as male-female ratio is concerned, in the rural areas males account for more than 80% starting from the primary level upto the graduate with the percentage increasing further. In the urban areas at primary and middle school levels females are found to account for 30-35%. At higher levels the picture is no different from the rural areas. For postgraduate and higher levels females are usually non-existent.

5. Interdistrict Variations in Enrolment of Scheduled Castes Students at Different Educational Levels in Marathwada in 1986

The 1986 enrolment figures published by the Directorate of Education Maharashtra expose the reality about the educational situation of scheduled castes succinctly for the recent years. Figures for Latur and Jalna have been given separately as these have become separate districts. The absolute enrolment figures from the primary to the tenth standard in all the districts of Marathwada indicate lesser strength with increasing

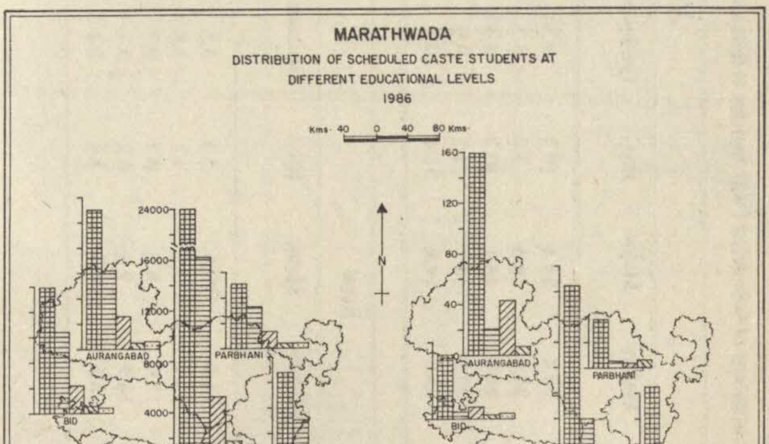


Fig. 8 A. Fig. 8 B.

Table 3 Percentage of Scheduled Caste females at different educational levels (1981)

	Urban									
	Primary	Middle	Matric	HSC	Graduate	Post-graduate	Engineering	Medical	Agriculture	Veterinary
Aurangabad	27.9	24.4	15.4	10.7	7.3	11.9	4.8	7.1	–	–
Parbhani	28.5	24.3	16.3	7.2	8.2	5.3	–	–	–	–
Nanded	31.3	24.0	14.1	10.2	6.3	6.2	–	6.7	–	–
Osmanabad	32.7	28.5	18.2	14.5	9.0	9.8	–	8.1	–	–
Bid	28.8	23.0	19.8	11.4	10.1	8.0	–	11.1	–	–

	Rural				
	Primary	Middle	Matric	HSC	Graduate
Aurangabad	13.9	11.6	7.5	5.4	3.5
Parbhani	1.7	11.7	7.2	4.1	3.8
Nanded	18.4	13.9	6.2	0.7	0.7
Osmanabad	21.6	16.9	9.8	6.2	3.1
Bid	16.5	13.1	8.3	3.4	2.2

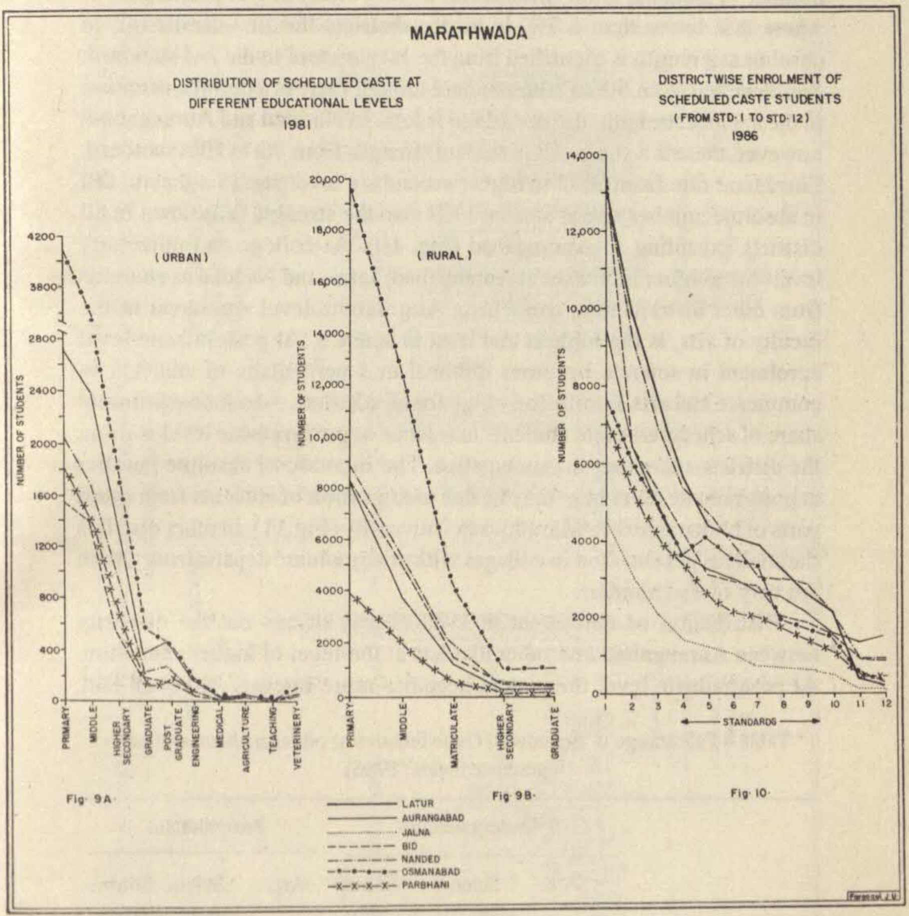


Fig. 9A.

Fig. 9B.

Fig. 10.

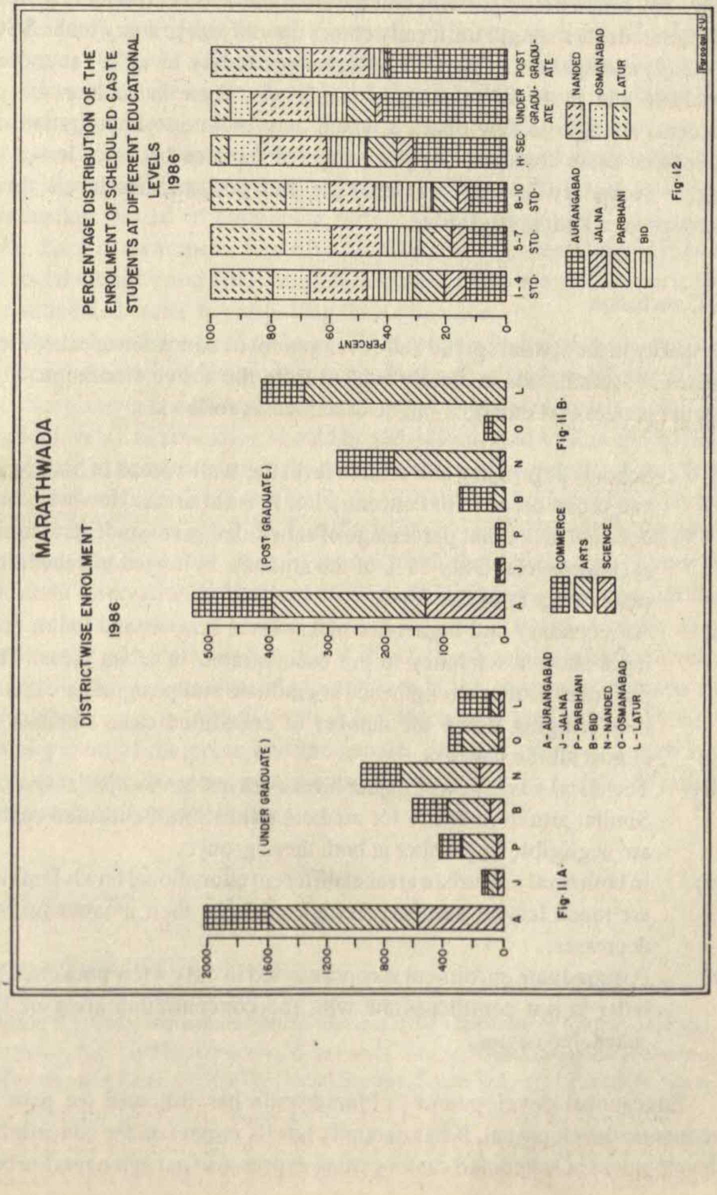
level. The average percentage of scheduled caste students to the total number of students at all these levels is 14% excepting at primary level where it is lower than 6.7%. In all the districts the first drastic fall in enrolment strength is identified from the 1st standard to the 2nd standard. It is clear that from 5th to 10th standard though there is a definite decrease in the student strength, the rate of fall is less. In Nanded and Aurangabad, however, there is a sharp fall in student strength from 9th to 10th standard. Enrolment rate from SSC to higher secondary level shows a drastic fall in absolute number and at standard XII also the strength falls down in all districts excepting in Aurangabad (Fig. 10). At college and university levels the number increases at Aurangabad, Jalna and Nanded as students from other districts also come here. At graduate level enrolment in the faculty of arts, is the highest and least in science. At postgraduate level enrolment in science becomes minimal and percentage of students in commerce and arts is uniformly high for all districts. Absolute enrolment share of scheduled caste students in science at postgraduate level is nil in the districts excepting in Aurangabad. The increase of absolute number at postgraduate level here may be due to migration of students from other parts of Maharashtra to Marathwada University (Fig.11). In other districts the students get enrolled in colleges with postgraduate departments which are very few in number.

Distribution of enrolment in 1986 clearly brings out the disparity between Aurangabad and other districts at the level of higher education. At postgraduate level the pattern becomes more intense. Although Bid,

Table 4 Percentage of Scheduled Caste females at undergraduate and postgraduate levels (1986)

	Undergraduates			Postgraduate		
	Arts	Sciences	Commerce	Arts	Sciences	Commerce
Aurangabad	12.2	6.1	4.8	4.8	3.1	4.1
Jalna	15.5	10.0	13.8	--	—	16.7
Parbhani	11.3	12.5	7.1	—	—	—
Bid	10.8	17.9	7.8	14.3	—	1.9
Nanded	13.0	8.2	5.5	8.3	—	1.9
Osmanabad	7.4	25.8	7.7	—	—	—
Latur	4.2	—	2.7	—	—	2.7

Source: Directorate of Education, Pune, Maharashtra



MARATHWADA

DISTRICTWISE ENROLMENT 1986

Fig. 11 A

Fig. 11 B

PERCENTAGE DISTRIBUTION OF THE ENROLMENT OF SCHEDULED CASTE STUDENTS AT DIFFERENT EDUCATIONAL LEVELS 1986

Fig. 12

Nanded and Latur at primary level and Osmanabad at middle level have higher percentage of students, at postgraduate level the number decreases (Fig. 12). Some broad patterns emerge from the 1986 enrolment figures: (1) the students strength uniformly comes down from primary to the SSC level (2) and again considerably at higher-secondary level; (3) at under-graduate and more so at postgraduate levels, there is an increase in students strength in few districts which may be due to immigration of scheduled caste students; (4) percentage of females becomes lesser at higher secondary level; (5) at graduate and postgraduate levels their percentage is almost negligible.

6. Conclusion

Disparity in the spatial spread and development of education of scheduled castes in Marathwada is clearly evident from the above discussion. The spatial pattern that emerges can be described as follows:

i) Schools at primary and middle level are well-spread in both rural and urban areas with concentration in rural areas. However, this does not mean that percentage of scheduled caste students is more at these levels. Only 11% of the students belonged to scheduled caste category at this level.

ii) At secondary and higher-secondary level schools and junior colleges show a tendency to get concentrated in urban areas. The pattern is further strengthened at graduate and postgraduate levels thus bringing down the number of scheduled caste students in almost all the districts.

iii) Technical education of higher level does not have a spatial spread. Similar situation exists for medical education. Scheduled castes are negligible in number in both these groups.

iv) In both rural and urban areas at different educational levels females are much less in number. At higher levels, their number further decreases.

v) Postgraduate enrolment is concentrated in only a few pockets. The latter is not commensurate with the concentration areas of the scheduled castes.

Educational development in Marathwada has followed the path of economic development. It has naturally left its impact on the educational development of scheduled castes getting expressed first in the rural-urban difference. Field studies done by different institutes further point out that even where facilities exist, quality of education at all levels is poor.

In rural areas, due to acute poverty children stay out of schools (Gogate, 1986). In schools and colleges in both rural and urban areas social treatment towards the scheduled caste students is anything but encouraging. Resultantly unwillingness on the part of the students to attend schools increases. Even colleges with congenial atmosphere are few. In case of females, dropout rate is higher at all levels and after graduation instead of continuing further studies, they prefer to take up jobs. Lack of awareness, low educational status of parents, poverty, lack of social mobility and communication facilities create a vicious circle for the scheduled castes in continuing their education.

Special facilities need to be provided to the scheduled caste students in terms of hostel accommodation, meals at schools, physical education, etc. Scholarship facilities should be made available at all levels including higher levels and education should be subsidised. Just a mere concession of tuition fee does not seem to be enough. It should be noted that very few scheduled caste students can reach the graduate and postgraduate levels when only they can avail the benefits of the reservation policy for jobs. The majority, however, are not able to reach that level. A mere vow to maintain reservation policy and implement it vigorously is thus not the only solution; rather it should be seen that the scheduled castes as a community get access to education at all levels, especially at higher levels. For this, intensive area-based programmes in the concentration areas of scheduled castes is urgently called for which will lead to an all-round development of the areas and the people. Actually, there is a need for comprehensive development programmes for them in which education will constitute a necessary part.

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TWENTY FOUR

Health as a Parameter in Regional Disparities in Educational Development: A Case Study of Andhra Pradesh

Sheela Prasad

It is becoming increasingly evident that growth-oriented development planning has failed to improve the socio-economic conditions of a large section of Third World population. Consequently, we find, that in recent years these models and goals of development are being critically evaluated and the earlier development policies followed are being questioned. It is now generally accepted that economic growth does not necessarily lead to social well-being and equity. The search for alternate development strategies to meet the basic needs of a population has therefore, gained momentum and finds itself expressed in various concepts: Basic needs concept, social welfare approach, social justice and equity, and quality of life. The emphasis in this kind of planning approach is on the less dynamic sectors of an economy and on specific target groups and areas comprising the poorer sections and backward regions of a country.

In the face of growing regional disparities, Indian planners have also realised that over-emphasis on economic growth has failed to deliver the promised goods. There is therefore an urgent need for a shift in thinking to more realistic development theories wherein economic growth becomes the means rather than the end of development. Apart from widening spatial inequalities in development, India also has glaring imbalances between the various sectors of its economy. Probably, one of the most neglected sectors of the Indian socio-economic structure is health. Planning for health can be effective only if it is understood in a wider social context and not just in a medical sense. India's health care system has not been able to tackle the magnitude and diversity of health needs of its population. One important reason for this may be the fact that health has not been linked to the wider framework of society — 'Health for All' cannot be achieved through the health sector alone. Inequalities in health both spatial and among various socio-economic groups are wider but less spoken about or researched. It is heartening to note that the present seminar is attempting to bridge this gap by bringing into focus the correlation between education and different socio-economic variables. For any harmonious development to take place such an integrated and comprehensive approach is necessary for we cannot ignore the mutual causation among the socio-economic and environmental factors.

Education and health are similar in that both are community and not individual based and have a higher spillover effect from among the various social variables. The present study attempts to examine how far regional imbalances in education can be explained by imbalances in the development of health. The prime focus of the paper is on health, the study area is the State of Andhra Pradesh and the time period is 1981. The paper will seek to test the validity of the following assumptions:

a) Regional disparities exist in both health and education in Andhra Pradesh and between Andhra Pradesh and India;
b) There is a greater diffusion of education vis-a-vis health facilities;
c) Higher levels of education will lead to better health;
d) Higher female literacy leads to higher nutrition and better health.

The analysis is spatial and is attempted at two levels, the first being the district, there being 23 districts in Andhra Pradesh and the second is a micro-level case study of one selected district in the State. While there have been many studies on education at a district and even taluk level, there have not been many on health at a micro-level and studies correlating health and education have been even fewer. It is hoped this study will throw up some interesting facts on these two chosen variables both of which operate in a very complex pattern at a micro-level.

Comparison of Health and Education between Andhra Pradesh and India

If only economics could explain development, then where would Kerala fit in? The State does not have a very high Gross National Product but records high literacy (literacy 70.4%, female literacy 64%) and high values for health (infant mortality rate 55 per 1000; life expectancy is 62 years) both a result of high per capita expenditure on health and education.

The positive impact on health with better education is further brought out by a glance at Table 1.

Table 1 Infant mortality rates by education level of women in India, 1978

Level of education	Rural IMR	Urban IMR
Illiterates	132	81
Literates (below primary)	105	59
Literates (primary & above)	64	49

Source: Infant & Child Mortality Survey, 1979, Registrar General of India, New Delhi.

When compared with India, Andhra Pradesh fares badly in both health and education and has the lowest value from among the four southern states. Kerala has the highest percentage expenditure in India on education and Tamil Nadu has the highest percentage expenditure on health which is reflected in their better performance in both education and health. In comparison in 1981, Andhra Pradesh had a literacy rank of 23 in the country. The reasons for this poor performance are partly historical. The former large princely state of Hyderabad of which present day Telangana is a part, has been an area of low literacy, especially female literacy as education was given little state support and female education even less by the Muslim rulers (Sopher, 1980). To enable a national and state level comparison some selected health and education indicators have been tabulated and presented in Table 2. It is clear from a glance at this table that Andhra Pradesh has lower values than the national average for most variables thereby suggesting that these sectors need immediate attention.

Educational Facilities in Andhra Pradesh

The spatial analysis of education at the district level in Andhra Pradesh brings to light some interesting findings. The indicators of education that have been considered for the study are: literacy; female literacy; rural and urban literacy; enrolment in primary, middle and high schools with special reference to girls. The year of reference is 1981 to enable comparison with health and other census data. Each of the chosen variables has been examined independently and then combined to form a composite index of educational development. These values have been mapped (Fig.1) to

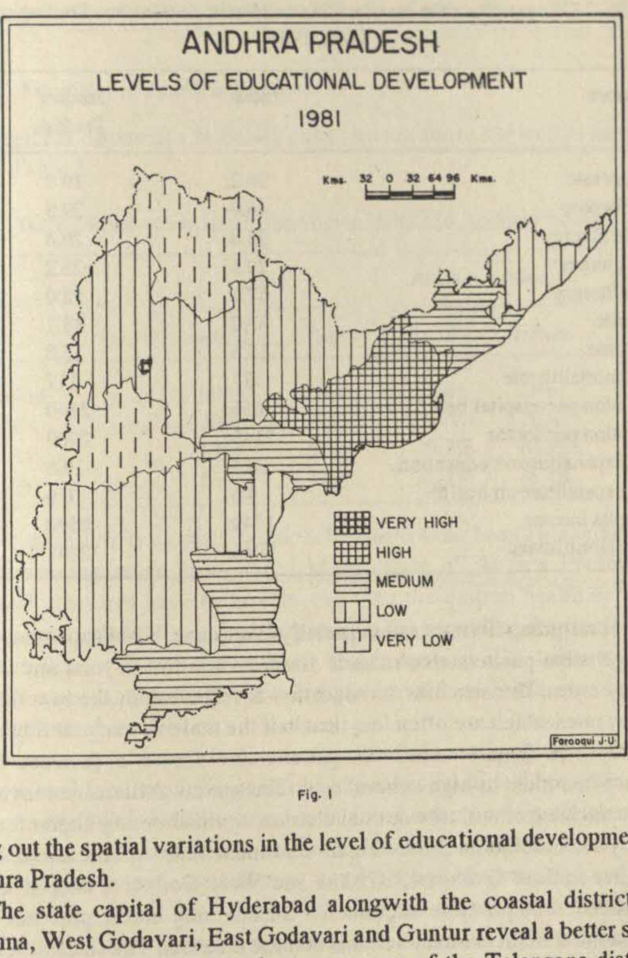

Fig. 1

bring out the spatial variations in the level of educational development in Andhra Pradesh.

The state capital of Hyderabad alongwith the coastal districts of Krishna, West Godavari, East Godavari and Guntur reveal a better score in education as compared to the poor scores of the Telengana districts particularly of Adilabad, Karimnagar and Nizamabad. As expected, the urban district of Hyderabad has the highest level of educational development in the state but if we single out the variable of urban Krishna, Chittoor and Nellore districts are equally high. The high values in Krishna and Chittoor can be explained by the location of Vijayawada and Tirupati respectively both being important educational centres. While marked variations exist between urban and rural literacy, they are less in the four coastal districts of Krishna, West Godavari, East Godavari and Guntur. On the other hand the Telengana districts reveal sharp inequalities be-

Table 2 Comparative data on education and health for Andhra Pradesh and India, 1981

Indicators	India	Andhra Pradesh
Literacy rate	36.2	29.9
Male literacy	46.9	39.3
Female literacy	24.8	20.4
Rural literacy	29.5	23.2
Urban literacy	57.1	52.0
Birth rate	33.2	35.1
Death rate	12.5	13.8
Infant mortality rate	127	117
Population per hospital bed	1456	2160
Population per doctor	2545	2789
%age expenditure on education	20.5	19.8
%age expenditure on health	9.6	8.9
Per capita income	1749	1590
Daily calorie intake	2043	2391

tween rural-urban literacy rates specially Warangal. Vishakapatnam with its large tribal pockets also records marked variation in rural and urban literacy rates. The sex bias in education is reflected in the low female literacy rates which are often less than half the male literacy rates in most districts. The female enrolment pattern also shows a decrease from primary to middle to high school level. The spatial patterns remain more or less unchanged with the coastal districts again showing higher female literacy and enrolment. Infact female enrolment at the middle school level is higher in East Godavari, Krishna and West Godavari than in urban Hyderabad. One possible explanation for this may be the presence of a large number of missionary schools in these districts. The sizeable Christian presence in the coastal districts has acted as a catalyst for social change and missionary impact has been greatest on female literacy.

There has been no attempt in this paper to correlate education and health with other socio-economic variables but some general inferences can be made. The more developed districts show a higher level of education and vice-versa. Regional disparities in education exist at a micro-level with 15 out of a total of 23 districts registering scores below average. This spatial picture of educational development brings out the fact that disparities exist at various levels — inter and intra-district level, between the sexes and also within the levels of education.

Health Facilities in Andhra Pradesh

The regional disparities in health exist and are more skewed as brought out in Table 3.

Table 3 Rural-urban health facilities in India and Andhra Pradesh

	India		Andhra Pradesh	
	Rural	Urban	Rural	Urban
Population	80%	20%	77%	23%
Doctors	30%	70%	N.A.	N.A.
Beds	13%	87%	9.7%	90.3%
Hospitals	26%	74%	21.7%	78.3%

The table clearly emphasises the urban bias of our health planning with this bias being more pronounced in the State of Andhra Pradesh. If remedial measures have to be effective then the district health network has to be strengthened as it has the potential for providing the crucial link between the local and the national health system. This district level analysis aims at providing a detailed picture of health infrastructure in Andhra Pradesh in 1981.

The indicators chosen for this analysis include rural population served with medical facilities, villages having medical facilities, hospitals, dispensaries and other health centres, urban bed ratio, and family planning achievement. Other health information had to be omitted from the analysis as it pertained to only government hospitals and dispensaries and was therefore not comparable. It may be observed that most of the health variables chosen are parameters of the health care delivery system and do not give any indication of the state of health of the population. This is because aggregate health statistics at a district level are not readily available and where available are again confined to records from government sources only. Each of the chosen health variables is analysed and the spatial variations that emerge are briefly discussed. West Godavari, Guntur and Nalgonda have a better distribution of health facilities in rural areas with over 60% of the rural population served by health facilities. Srikakulam and Adilabad have fewer health facilities, only 25.4% and 27.7% of the rural population of these districts is served by any health facility. The larger districts with hilly, forested and difficult terrain have a large number of villages with no medical facility–Srikakulam (1735 villages), Adilabad (1406 villages), Vizianagaram (1290 villages), Mahbubnagar (1234 villages), and Vishakapatnam (1162 villages). If we further break-up the villages according to population size groups, some notable features that emerge are; (i) in all districts less than 10% of the villages below 500 size category have a medical facility, the only exception being Nalgonda which has 20% villages in this category with medical facilities; (ii) the larger villages in the above 5000 category are better placed with most districts having over 80% of these villages served by a health facility; (iii) size of a village determines the availability of a health facility — the larger the village the greater its chances of being served by a health centre; (iv) the distribution of health facilities by village size also reveals that in the coastal more developed districts the provision of health facilities is more even while in the Telangana districts most of the health facilities are concentrated in the larger villages. Among the districts, Nalgonda presents a better spatial pattern of health facilities followed by Chittoor and Prakasam.

The spatial distribution of hospitals shows a concentration in Hyderabad (220), and Guntur (204) and the other coastal districts of East Godavari and Krishna, Adilabad and Nizamabad have the least number of hospitals in the state — 42 and 43 respectively. The distribution of dispensaries and other health centres also shows a preference for the coastal districts with East Godavari (741), Guntur (735), West Godavari (714), and Krishna (707) having the highest number. In contrast Hyderabad has fewer dispensaries than hospitals suggesting a polarisation of specialised medical care in the state capital. The urban bed ratio favours Hyderabad but the highest value is recorded by Prakasam, Guntur and Chittoor districts. The high urban bed ratio in Prakasam is a result of the presence of a number of hospitals in its urban centres specially the district capital, Ongole. Very low urban bed ratios are reported from Vizianagaram, Anantapur and Mahbubnagar districts. With reference to achievement in Family Planning measures, the best results are reported from Hyderabad and Nellore while Rangareddy, Adilabad and Medak show poor achievement.

Based on each of these variables a composite index for health has been calculated which brings out the spatial inequalities in health (Fig.3). Both the maps showing the composite index for health and education have been prepared by grouping the index into five categories of Very High, High, Medium, Low and Very Low with the medium range being mean plus one

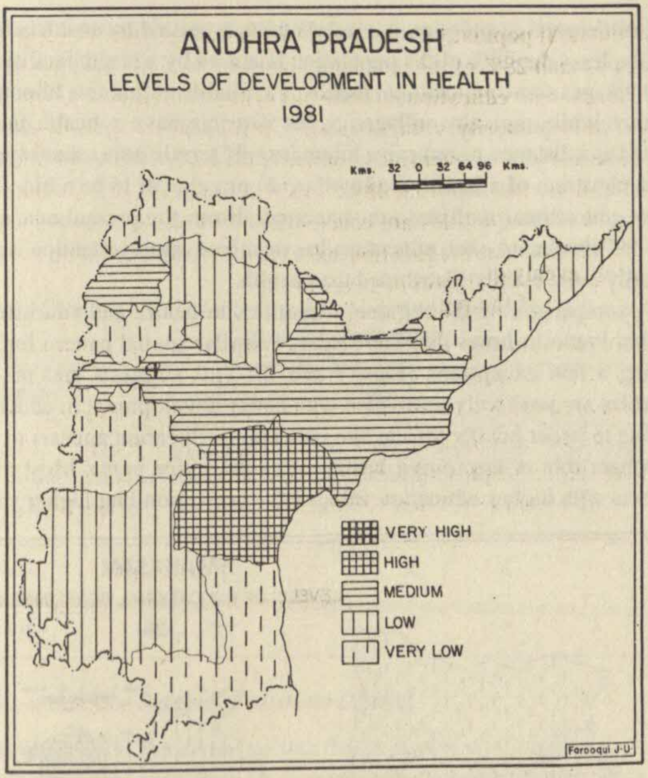

Fig · 2

standard deviation. Hyderabad records the best score with regard to health followed by Guntur and Prakasam districts while Adilabad and Vizianagaram have the lowest scores. The higher scores for Hyderabad and Guntur are not difficult to explain both having a medical college and larger number of doctors but the high score of Prakasam needs further testing at a micro-level. The spatial pattern of health facilities also shows a concentration in the coastal districts with the southern and northern parts of the state being poorly served.

Correlation between Health and Educational Development

At the sectoral level we notice that imbalances are present with education receiving more attention than health. The spatial diffusion of educational facilities is better and more far reaching as compared to health. While over

80% of the rural population in most districts is served by an educational facility, less than 28% of the population is served by a health facility. For most villages some educational facility is available within five kilometres distance while majority villages in the districts have a health facility located at a distance of over five kilometres. If terrain constraints operate for the location of a health facility they do not appear to be a hindrance where educational facilities are concerned. From the present analysis it may be concluded that education has received more attention and is spatially more evenly distributed than health.

A comparison of the regional disparities in health and education in Andhra Pradesh shows that there exists a similar spatial pattern for both barring a few exceptions (Figs. 1 and 2). This suggests that the two variables are positively correlated with better development in education leading to better health. Of the two indicators, education appears to play a stronger role in improving health rather than vice versa. Most of the districts with higher education values have corresponding higher values

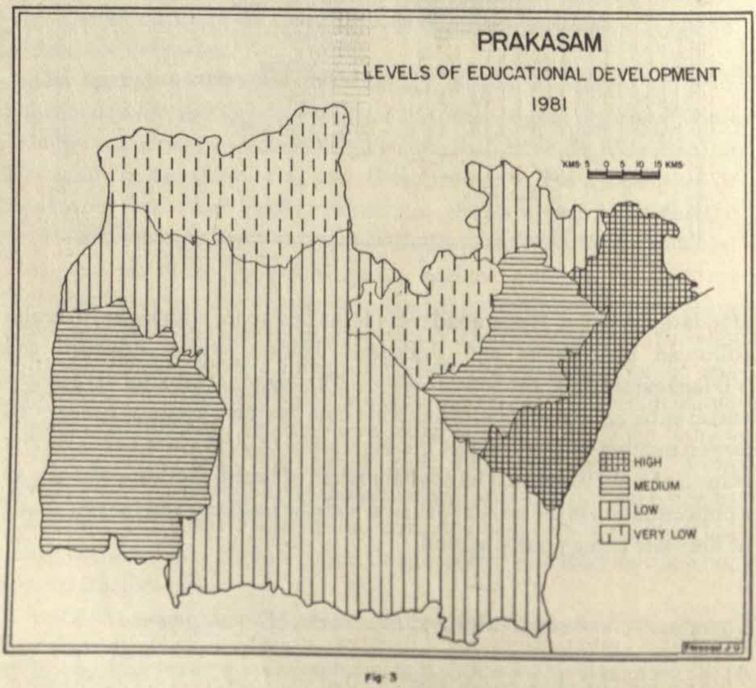

Fig 3

for health but some districts with higher values in health do not have high values in education. But by and large, it may be surmised that a positive relationship exists between health and education — two crucial components of the social matrix of a region. This relationship is effectively brought out by Table 4 which presents the levels of development in health and education at the district level. Table 4 brings out the relationship pattern between the two variables which points to a positive correlation between them barring one major anomaly, that is Prakasam.

Table 4 Showing levels of development in health and education in the districts of Andhra Pradesh

Education	Health				
	Very low	Low	Medium	High	Very High
Very low	2	1	—	—	—
Low	2	5	4	1	—
Medium	1	—	2	1	—
High	—	—	3	—	—
Very high	—	—	—	—	1

Micro-level Case Study of Prakasam District

It was observed in the earlier section that a major deviation from the broad correlation trend was that of Prakasam district which figures in the category of low educational development but registers high development in health. It is for this reason that the district has been singled out for a micro-level study to determine the causes of this anomaly. This analysis is based on taluk level data for 1981, there being 17 taluks in the district. Three variables in education and three in health have been analysed and they include: literacy, female literacy, rural population served by an educational facility; number of hospitals, number of dispensaries and other health centres and rural population served by a health facility. Based on the first three variables a composite index of education has been calculated and the last three variables have been aggregated to develop a composite index of health.

At the micro-level the spatial picture for literacy shows that Ongole and Chirala taluks have a higher rate because of the presence of the two largest urban centres of the district. The range in literacy rate is wide from 41.4% in Ongole to 17.8% in Yerragondapalem. An interesting feature of

Prakasam taluk is that of its 17 taluks, 8 are entirely rural with no urban population. While most of these taluks have a lower literacy rate than the other taluks, one major exception is Parchur which has a literacy rate of 39.7% the highest rural literacy rate in the district. For most taluks the higher literacy rate is a function of higher urban literacy with rural literacy being below 25%. Urban literacy rate is highest in the district capital of Ongole (58.5%). Ongole also has the highest female literacy (30.4%), but the rural taluk of Parchur has the distinction of also having a high female literacy (28.9%). In most of the other taluks female literacy is low usually below 15%. With regard to educational facilities an interesting feature is the fact that six taluks have 100% of their population served by an educational facility and in all remaining taluks over 86% of the population is served by a school, only 61 villages in the district have no school. It can be inferred from this that the spatial spread of education is nearly total — in other words most villages have a primary school. The question that then comes to mind is that if an educational facility is so readily available why are the literacy rates so low? The answer probably lies in the level of enrolment which must be low. In the composite index of educational development Ongole has the highest score followed by Parchur and Chirala taluks while Yerragondapalem and Darsi have the lowest scores (Fig.3).

Prakasam ranks high in the state at the inter-district level with regard to health facilities and we now turn over our attention to the intra-district spatial picture of health. The distribution of hospitals reveals that urban areas account for 25% of total hospitals, the highest concentration being in Chirala town which has 8 out of a total of 9 hospitals in the taluk. It needs to be mentioned here that Prakasam has 10 towns of which only two, Ongole and Chirala are Class II towns, the rest being Class III and IV. The pull factors of these urban centres is therefore not very strong except for Chirala and Ongole. The distribution of dispensaries shows a wide range from 96 in Ongole to only 6 in Pamur and Kondapi taluks. The percentage rural population served by a health facility is high for most taluks of the district pointing to a greater dispersal of these facilities when compared to other districts. The rural taluk of Santhamaguluru has 99.6% of its population served by a health facility while for most taluks it is over 60%. This compares very favourably with the values for other districts where the rural population served is below 45%. The composite index of health (Fig.4) shows surprisingly that the two rural taluks of Santhamaguluru and Parchur have the best scores while again the rural taluk of Pamur and Kondapi taluk have the lowest scores. The explanations to these spatial patterns lie in the physical terrain of the district — large peripheral parts of the district being very hilly and forested.

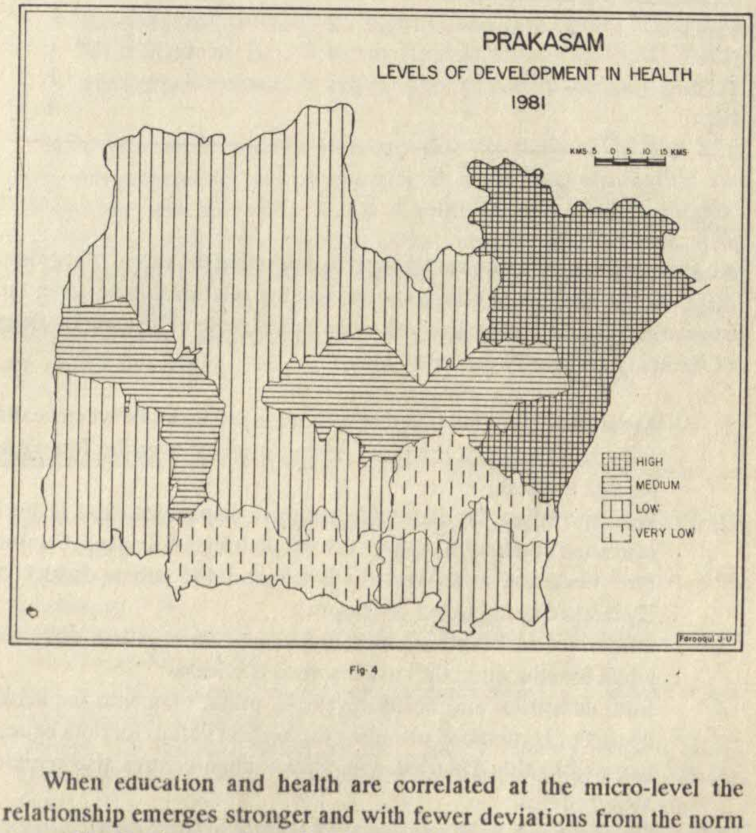
PRAKASAM
LEVELS OF DEVELOPMENT IN HEALTH
1981

Fig. 4

When education and health are correlated at the micro-level the relationship emerges stronger and with fewer deviations from the norm except for Santhamaguluru. In the case of the latter the high values for health are because all except one of the 40 villages of the district are served by a health facility. For most of the other taluks higher educational development corresponds with higher development in health. The results of the correlation exercise are presented in Table 5. It is obvious from the table that Prakasam has better health facilities as there are 8 taluks with above average scores in health as compared to only 7 in education.

Table 5 Correlation between health and education in Prakasam district

Education	Health			
	Very low	Low	Medium	High
Very low	–	2	–	–
Low	2	4	1	1
Medium	–	1	2	1
High	–	–	–	3

Conclusion

An attempt has been made in this paper to determine the extent of regional disparities in health and education and test the relationship between the two variables with Andhra Pradesh as the unit of study. The main findings of the study are briefly presented below.

1. At the outset we find inherent sectoral inequalities between health and education with the latter getting priority over the former in Andhra Pradesh.
2. Within Andhra Pradesh wide regional disparities exist in both education and health with the coastal districts of Krishna, Guntur, East Godavari and West Godavari and the urban district of Hyderabad being better developed.
3. Disparities in health are more marked as there is less diffusion while for education the spatial spread is wider.
4. Both education and health reveal an urban bias with the urban district of Hyderabad recording the highest values for both education and health. Districts with major urban centres also register higher scores.
5. There appears to be an interesting feature in some districts having only medium and smaller towns. We find that in districts like Nalgonda and Prakasam where no large urban centre is located there is a greater dispersal of health facilities with a larger number of villages being served whereas in districts having one or more large urban centre there appears to be a polarization of both education and health facilities at the cost of the rural areas.
6. The study suggests a positive correlation between education and health with education being the more dominant variable of the two.

Higher education leads to better health but better health may not result in higher education.

7. The role of female literacy in health is not clearly established as there is only one variable in the study on the measurement of health, that is family planning. The overall pattern of female literacy being low no trends can be discerned, but it may be observed that districts with higher female literacy like Hyderabad, West Godavari, East Godavari, Krishna, Guntur and Nellore show a better performance in achievement of family planning goals.

In conclusion, it must be confessed that the study could have been more comprehensive and meaningful if more data on health was forthcoming, specially with regard to nutrition and health personnel. Nonetheless, within the constraints of data paucity an attempt has been made to present the pattern of regional disparities in health and education in Andhra Pradesh. It is hoped that some of the questions raised in this study will provide stimulus for further research in order to narrow down the gaps in this paper.

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TWENTY FIVE

Inter and Intra-tribal Inequities in Education: A Case of Andhra Pradesh

K. Sujatha

Introduction

The idea of equality in education started with a limited objective of making educational facilities accessible to all (equal access). It was gradually extended to more substantial forms of equality such as in the allocation of resources to different groups (equal inputs). Today the emphasis is not only on equal opportunity but also equalising the output and subsequently improving the life chances of different groups.[1] For social mobility and increased production, education is the pre-requisite, therefore achieving equity in education among various groups is highly essential.

After Independence the architects of the Indian constitution considering the socio-economic inequalities and disadvantaged position of weaker sections, made special provisions for their development. Scheduled tribes constitute one group comprising of weaker sections. In view of constitutional provisions, the governments both at state and central level have adopted special measures for the educational development of tribes.

In this context, taking into account the special provisions made for achieving equity among tribes we have to examine how far these special measures helped in equalising education among different tribal groups and within the tribes among males-females.

Besides free education, various facilities and incentives have been provided to tribals to bring them into the fold of formal education and also to accelerate the pace of progress. However, with all persistable efforts the educational progress among the tribes is slow and varies widely across the regions, states and districts. The gap between the tribes and others has increased. Taking into account this situation the National Policy on Education (1986) has strongly emphasised the importance of micro-level planning in order to reduce the disparities as most of the programmes and policies for tribal education have largely been based on macro-perspective which does not reflect the tribal reality that is characterised by heterogeneity. Usually tribes are considered as a homogeneous group while planning schemes and incentives, but the different tribes are at different levels of socio-economic development, their exposure and awareness ranges between total assimilation to absolute isolation. To plan for their educational development, perhaps one has to take into account the differential response from different tribes to education. For this one has to examine the extent of educational progress among different tribal groups in the same geographical region. As it is true that some articulate and dominant groups take advantage and exploit the benefits whereas the other groups remain outside the education system and perpetuate illiteracy. In this context it is nevertheless useful to examine and understand the inter-tribal and intra-tribal disparities in order to identify the groups that are lagging behind in educational development.

In the present paper an attempt is made to examine disparities in education among different tribal groups and within the tribes between male-female in the state of Andhra Pradesh which has the lowest tribal literacy (7.83 per cent) in the country.

In this paper literacy has been taken as an indicator to examine the inequities. The extent of disparities is measured by using modified version of Sopher's Index.[2]

The state of Andhra Pradesh is geographically divided into three regions, i.e. Coastal Andhra, Rayalseema and Telangana. The three regions are considered economically advanced, medium and backward areas respectively. According to 1981 census Andhra Pradesh has 5.92 per cent of tribal population in 53.4 million total population. There are 33 tribal groups. The population size, levels of socio-economic condition and habitation vary widely. Twelve of the tribal groups are considered as primitive groups basing on their small number and low techno-economic stage. The numerically largest tribe Sugall/Lambada has a population of 11.58 lakh. There are six major tribes with population numbering 1 to 3.5 lakh and there are another six groups with 40 to 80 thousand population. Apart from these groups there are many numerically small groups. Some of the major tribes like Sugali/Lambada, Koya, Yerukula, Yenadi live in plains having symbiotic life with non-tribes. While some tribal groups

Table 1. Inter and intra-tribal disparities in literacy in Andhra Pradesh 1981

S. No.	Name of the Tribe	Population			Percentage of literacy			Disparity index
		Male	Female	Total	Total	Male	Female	Male/Female
1.	Andh	3057	2937	5994	8.54	13.77	3.10	0.67
2.	Bagata	44659	43335	87994	8.52	14.70	2.16	0.86
3.	Bhil	143	108	251	19.92	28.67	8.33	0.59
4.	Chenchu	14534	13900	28434	9.71	13.34	5.92	0.37
5.	Gadaba	13829	13903	27732	10.59	10.60	3.04	0.56
6.	Gond	84509	84968	169477	5.75	10.27	1.25	0.93
7.	Jatapu	43305	43201	86506	9.63	14.40	4.85	0.49
8.	Kammara	18419	18129	36548	8.26	12.15	4.31	0.47
9.	Kattunayakan	205	194	399	26.32	35.12	17.01	0.36
10.	Kolam	11043	10799	21842	3.26	5.20	1.29	0.61
11.	Konda Dora	70360	68878	139238	5.79	9.07	2.44	0.58
12.	Konda Kapu	14222	13811	28033	18.49	22.51	14.33	0.22
13.	Konda Reddi	27352	27333	54685	7.77	11.13	4.41	0.42
14.	Khond	20638	18770	39408	1.26	2.09	0.36	0.77
15.	Kotia	15548	15918	31466	9.71	15.15	4.40	0.56
16.	Koya	180752	179047	359799	7.89	11.86	3.88	0.50
17.	Mail	1249	1218	2467	9.73	16.49	2.79	0.80
18.	Kulia	216	197	413	11.62	16.67	6.09	0.46

19.	Manne Dora	9565	9399	18964	6.72	9.89	3.49	0.47
20.	Mukha Dora	8839	8617	17456	3.84	6.08	1.54	0.61
21.	Nayak	3310	3222	6532	5.48	8.67	2.20	0.61
22.	Pardhan	7955	8068	16023	15.38	25.76	5.16	0.75
23.	Porja	8245	8234	16479	2.88	5.06	0.70	0.87
24.	Reddi Dora	2686	2600	5286	2.54	4.21	0.81	0.72
25.	Rona, Rena	134	98	232	4.31	5.97	2.04	0.47
26.	Savara	41776	40325	82101	6.15	9.28	2.90	0.52
27.	Sugali	595632	562710	1158342	6.02	9.94	1.88	0.74
28.	Thoti	707	709	1416	17.94	31.40	4.51	0.91
29.	Valmiki	21861	21083	42944	16.37	28.37	10.03	0.50
30.	Yanadi	165706	154738	32044	7.74	10.73	4.54	0.39
31.	Yerukula	153329	147228	300557	14.55	20.83	8.04	0.44
32.	Unspecified	30209	28970	59179	8.69	15.24	1.86	0.94
	Total	1618689	1557312	3176001	7.82	12.02	3.46	0.56
				Avg.	10	14	4	
				Std . dev.	6	8	4	
				CV	60	57	85	

live in forest and hilly inaccessible areas. Except few tribes like Gond, Koya, Savara and many other tribes have adopted Telugu as regional language.

Inter-Tribal Disparities

Table 1 presents the population and literacy levels of different tribes for the year 1981 in the state. The literacy rate varies among different tribes. The highest and the lowest literacy ranges between 19.37 per cent and 1.26 per cent found among the Valmiki and Khonds respectively. Both these have population of 42 thousand and 31 thousand as they constitute medium size tribes. Among the six numerically large tribes who have population above 1 lakh to 11 lakh, the literacy varies between 14.55 to 5.75 per cent. The numerically largest tribe Lambada has only 6.02 per cent literates which is below state average tribal literacy. Infact except Yerukulas all the other 5 major tribes (Lambada, Yenadi, Koya, Konda Kapu and Gond) have literacy rate below the state average tribal literacy. There are six tribes having literacy rate ranging between 1 to 5 per cent.

The coefficient of variation for aggregate literacy of different tribes during 1961, 1971 and 1981 is as follows:

	1961	*1971*	*1981*
Total	83.11	59.10	60.30
Male	62.30	55.24	57.39
Female	89.35	148.46	84.58

The coefficient of variation was higher during 1961 when the literacy rate among many tribes was lower compared to 1971 and 1981. With the increase in literacy rate, the inter-group variations/disparities also increased. However, it is also true that the inter-group disparities are higher among tribal males than among the females. The coefficient of variation among females has increased between 1961 and 1971 but it has declined during 1981.

Table 2 gives comparative picture of the percentage increase of literacy among different groups at three points of time (1961, 1971 and 1981). It would be interesting to examine percentage increase of literacy among different tribes in a period of three decades. This comparative picture tells how the special measures are able to influence different groups in their educational progress.

The highest percentage increase of literacy from 1961 to 1971 was found among Valmiki who had the highest literacy during 1961. The lowest percentage increase (0.07) was found among Konda Dhoras. Among the major tribes the Gonds and Koyas had less than 1 per cent and others 1 to 2.7 per cent increase in their literacy in a decade from 1961.

Table 2 Percentile increase in literacy among Tribes from 1961 to 1981 in Andhra Pradesh

		Per cent of literacy	Per cent of literacy	Percentile increase	Per cent of literacy	Percentile increase
		1961	1971	1961-71	1981	1971-81
1.	Andh	4.50	8.81	4.31	8.54	– 0.27
2.	Bagta	5.38	6.62	1.24	8.52	1.90
3.	Cenchu	5.95	6.59	0.64	9.71	3.42
4.	Gadabas	2.52	3.43	0.91	10.59	7.16
5.	Gond	2.65	3.31	0.66	5.75	2.44
6.	Hill Reddies	2.62	4.23	1.61		– 4.23
7.	Jatpus	4.00	4.48	0.48	14.40	9.92
8.	Kammaras	2.90	7.54	4.64	8.26	0.72
9.	Kattunayakam	1.35	15.22	13.87	26.32	11.10
10.	Kolam	0.94	1.36	0.42	3.26	1.90
11.	Konda Dhoras	3.22	3.29	0.07	5.79	2.50
12.	Konda Reddies	2.00	4.25	2.25	7.77	3.52
13.	Kondakapus	5.07	5.51	0.44	18.49	12.98
14.	Kondhs	0.62	0.93	0.31	1.26	0.33
15.	Kotla	3.32	5.45	2.13	9.71	4.26
16.	Koya	2.97	3.93	0.96	7.89	3.96
17.	Kuluia	3.53	14.89	11.36	11.62	-3.27
18.	Malls	7.72	7.53	– 0.19	9.73	2.20
19.	Pardhan	4.78	8.72	3.94	15.38	6.66
20.	Porja	1.82	2.39	0.57	2.28	– 0.11
21.	Rona, Rena	0.00	8.33	8.33	4.31	– 4.02
22.	Sugalis (Lambadis)	4.72	6.48	1.76	6.02	– 0.46
23.	Valmiki	10.17	12.87	2.70	19.37	6.50
24.	Yenadis	4.84	5.84	1.00	7.74	1.90
25.	Yerukalas	8.03	10.25	2.22	14.55	4.30
	Total	4.41	5.33	0.92	7.82	2.49

Source: Census of India, 1961, 1971 and 1981.

Literacy data for 1971 and 1961 are available for 25 tribes.

The percentage increase in literacy is higher among those who had higher literacy during 1961 and also higher among males than among females.

When we compare the inter-tribal literacy of 1971 and 1981 the highest and the lowest percentage increase ranges between 12.98 and 0.33 among Konda Kapus and Khonds respectively. Though Valmiki tribe has the highest literacy in both 1971 and 1981, the percentage increase among them was only 6.5. Overall the percentage increase in literacy has enhanced during 1971-1981. From 1971 among some tribes like Konda Kapu, Jatapus the pace of progress of literacy has increased compared to previous decade.

More interestingly and surprisingly there are some tribes who had negative growth of literacy. The literacy rate among largest tribe Lambada has declined from 1971 to 1981 from 6.48 percent to 6.02 percent. Similarly in case of tribes like Andh, Kulia, Porja the literacy rate between 1971 and 1981 has declined.

From the foregone discussion it is clear that the educational progress varies widely among different tribes thus leading to sharp inter-tribal disparities. While some tribes are consistent in their progress from 1961 to 1981, some other tribes have very low rate of increase in their literacy rate and thus continue to occupy the low position. The numerically major tribes, those who are living in plains also have equally very low level of literacy rate. Surprisingly among some tribes the literacy rate has declined from 1971-1981.

There is considerable varlation in the pace of progress of literacy among different tribes. While some numerically small tribes have shown significant progress in literacy, but their number is so small it could not bring much change on total educational picture of the tribes. Some of the tribes living in inaccesible forest areas like Khonds, Kolam, Mukha Dhora, Porja, Reddi Dhora have very low level of literacy. But some hill tribes like Konda, Kapu Kulia, Pradhan have much higher literacy compared to state average tribal literacy.

In view of inter-tribal disparities we have to examine the socio-cultural constraints of individual groups and need to plan suitable programmes for them. The inter-tribal disparities are not only found in Andhra Pradesh. In fact this type of inequalities among the tribes is emerging in other states also. The tribes who have an advantage of coming in contact with voluntary organisations, Christian missionaries, and articulate elite groups do take advantage of educational facilities and irrespective of their population size they do progress. Some of the tribes inspite of living in plains face many disadvantages like land alienation, feudal oppression, etc. and become more vulnerable groups. Some of the tribes in Andhra Pradesh inspite of their constant contact with non-tribes remained unaware of facilities, e.g. Yenadis.[3] In order to understand the dynamics of disparities we need micro level research studies to examine education in the total perspective of tribal social structure.

Perhaps the spatial and intergroup disparities which are to some extent obvious due to different geographical and socio-economic resources. But inequalities within the same group based on gender is a new phenomenon in case of tribes. It is essential to take note to how formal education is responded by male-female from the same group. This exercise would help how to spread education among tribes with specific programmes.

Male-Female Disparities

Women in a traditional tribal society have equal if not higher social status and participate in economic activities equally with men. In some of the communities women manage hard task jobs particularly in case of hill and shifting cultivation. The traditional tribal institutions do not discriminate women for having relevant training for their cultural milieu. With the introduction of formal education in tribal areas new forms of inequalities started as a result of choice to send or not to send a girl to school. On the other hand the formal education creates a different value system and creates cleavages among the groups and within the group based on gender. When we examine the literacy among different groups the most disadvantaged group is tribal female. Tables 1, 2, 3 and 4 present the disparity in literacy between male-female among different tribal groups in Andhra Pradesh.

According 1981 census, the state female tribal average literacy rate is 3.46 per cent as against 12.02 among tribal males. From 1961 to 1971 the female literacy among tribes in the state has increased to 2.13 per cent as against 8.33 per cent among males. Alongwith this slow progress of female literacy the disparity between male-female has further increased to 0.61. The highest disparity index in 1971 was found among the tribe Porja. Among some of the tribes like Andh, Konda Kapu, Yenadi, etc. the disparity has declined marginally. However, in case of some tribes like Gadaba, Kulia, etc. the disparities have increased. From 1971 to 1981 the state average disparity index has declined. Except in case of few tribes, in others the disparities have slightly reduced from 1971 to 1981.

Some of the tribes like Kolam, Mukha Dhora and Sugali/Lambada literacy among the females remains very low among both numerically

Table 3 Inter and intra-tribal disparity in literacy 1961

S. No.	Tribe	Percentage of literates and total population in Andhra Pradesh			
		Total	Male	Female	Disparity index *M/F*
1.	Andh	4.50	8.39	0.14	1.80
2.	Bagta	5.38	10.70	1.03	1.04
3.	Cenchu	5.95	8.55	3.20	0.44
4.	Gadabas	2.52	4.00	1.04	0.59
5.	Gond	2.65	5.02	0.26	1.30
6.	Hill Reddies	2.62	4.32	0.92	0.68
7.	Jatpus	4.00	6.61	1.38	0.69
8.	Kammaras	2.90	4.85	0.94	0.72
9.	Kattunayakam	1.35	3.45	0.00	ERB
10.	Kolam	0.94	1.79	0.10	1.26
11.	Konda Dhoras	3.22	5.36	1.07	0.71
12.	Konda Reddies	2.00	3.58	0.78	0.67
13.	Kondakapus	5.07	8.07	1.98	0.62
14.	Kondhs	0.62	1.17	0.08	1.17
15.	Kotia	3.32	5.80	0.74	0.91
16.	Koya	2.97	4.88	1.04	0.68
17.	Kuiuia	3.53	5.07	2.22	0.36
18.	Malis	7.72	11.13	3.64	0.50
19.	Pardhan	4.78	9.63	0.53	1.28
20.	Rona, Rena	0.00	0.00	0.00	ERB
21.	Sugalis (Lambadis)	4.72	7.68	1.61	0.69
22.	Valmiki	10.17	18.57	2.97	0.83
23.	Yenadis	4.84	7.33	2.16	0.54
24.	Yerukalas	8.03	12.23	3.71	0.54
25.	Unspecied	9.69	15.85	4.25	0.60
	Total	4.41	4.26	1.48	0.47
	Average	3.60	696	1.43	
	Std. dev	2.98	4.28	1.24	
	CV	82.57	61.40	86.79	

large as well as small tribes. Leaving numerically insignificant tribes, highest female literacy is 14.33 per cent found among Konda Kapu as against 22.51 per cent among the male counterparts of the tribe. The lowest literacy 1.25 per cent among tribal female is found in one of the numerically large tribe Gond. The highest and the lowest disparity index 0.93 and 0.22 in male-female literacy is found among the Gonds (who also have the lowest female literacy) and Konda Kapus respectively.

Table 4 Inter and intra-tribal disparity in literacy 1971

S. No.	Tribe	Percentage of literates and total population in Andhra Pradesh			
		Total	Male	Female	Disparity index *M/F*
1.	Andh	8.81	17.81	1.30	1.17
2.	Bagta	6.62	11.72	1.35	0.96
3.	Cenchu	6.59	8.92	3.98	0.36
4.	Gadabas	3.43	5.66	1.26	0.66
5.	Gond	3.31	5.97	0.59	1.02
6.	Hill Reddies	4.23	6.78	1.53	0.66
7.	Jatpus	4.48	7.49	1.49	0.71
8.	Kammaras	7.54	12.03	2.92	0.64
9.	Kattunayakam	15.22	24.81	7.50	0.56
10.	Kolam	1.36	2.57	0.19	1.14
11.	Konda Dhoras	3.29	5.69	0.97	0.78
12.	Konda Reddies	4.25	6.68	1.90	0.56
13.	Kondakapus	5.51	8.12	2.70	0.49
14.	Kondhs	0.93	1.52	0.25	0.79
15.	Kotla	5.45	9.80	1.10	0.97
16.	Koya	3.93	6.45	1.39	0.68
17.	Kuluia	14.89	7.83	26.03	0.56
18.	Malls	7.53	13.03	1.67	0.92
19.	Pardhan	8.72	15.18	5.02	0.50
20.	Porja	2.39	4.53	0.18	1.41
21.	Rona, Rena	8.33	14.29	0.00	0.00
22.	Sugalis (Lambadis)	6.48	10.11	2.63	0.60
23.	Valmiki	12.87	20.69	5.02	0.65
24.	Yenadis	5.84	8.46	3.07	0.45
25.	Yerukalas	10.25	15.28	5.02	0.51
26.	Unspecied	16.33	21.61	10.31	0.35
	Total	5.35	8.33	2.13	0.61
	Agerage	6.87	10.50	3.44	
	Std. dev.	4.10	5.80	5.10	
	CV	68.73	55.25	148.47	

The disparity between male female varies from tribe to tribe. The state average disparity index is 0.56. Nineteen of the total tribal groups have the disparity index much higher than the state average index.

In 1961 the state average tribal females literacy was 1.48 per cent as against 4.29 per cent among males having a disparity index of 0.47. At individual tribal level the disparity index varied and the highest disparity index was 1.80 among Andh. The lowest disparity was found among Chenchu. The highest female literacy (1961) was among Yera-kulas with 3.71 per cent as against 12.23 per cent among males.

Some of the small tribes like Pradhans and Thoti have very high literacy among the males (25.76, 31.40 per cent) but the female literacy is as low as 5.16 and 4.51 per cent respectively.

Thus male-female disparity is not only among the educationally backward major tribes but also among some of the small tribes with high literacy. It is evident that females among tribes are invariably at disadvantageous position. Infact these disparities became more sharp if we took into account higher levels of education.

To sum up tribes even at a state level cannot be treated as a homogeneous group in planning for their education. Among the tribes differential approaches and treatment need to be adopted based on their socio-economic and geographical situation. The unique problems of those who inhabit the plains need to be understood. In order to have balance in education within tribe female education has to be given special attention.

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The Sopher's Index in its original form can be written as follows: If X_1/X_2 represent the respective percentage values of the variable of groups 1 and 2, then index of inequality, D is given by the following equation:

$D = \log(X_1/X_2) + \log(Q - X_1)/(Q - X_2)$

where $X_2 > X_1$

and $Q = 100$

However, Kundu and Rao (1982) have found that a modification such that $Q = 200$ would provide better results.

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TWENTY SIX

Inter-District Disparities in Educational Development in Karnataka

Hemlata Rao

It is needless to say that education is the most important prerequisite of economic development and social change. Along with the development of education, economic opportunities to masses increase and the social barriers get narrowed down. It is increasingly being recognised that expenditure on education is in fact an investment on human resource development. Recognising the importance of education, the founding fathers of the constitution of India, not only considered free and compulsory elementary education as one of the major goals of educational policy but also called for strategies of educational development which would achieve these targets of universalisation of elementary education within the first decade of planned development. Consequently, the First Five Year Plan (1951) while taking note of the existing inter-regional imbalances specifically underlined the need for the equitable distribution of educational opportunities and considered it as one of the major goals of the educational planning in the country. In order to achieve high rate of educational development and its even spread over different regions it was planned to provide educational facilities to all the regions and especially to the rural areas. The National Policy Resolution of 1968, called for a strategy of educational development to correct regional imbalances and minimisation of intra and inter-group disparities. Consequently, in all the Five Year Plans provisions were made to provide special incentives and facilities for the education of the school age children in general and those belonging to the backward and deprived strata of the society in particular.

Karnataka has been broadly following the National Educational Policy and attempts are being made to achieve the desired objectives. In the sphere of education Karnataka has been a pioneering state and several steps were taken up for the development of education. The state is well poised for a pattern of rapid economic development. The state has adopted the pattern of education enunciated in the National Policy on Education. The educational institutions are increasing in number, indicating the spread of education in the state. There were 3118 pre-primary schools accommodating 100,932 boys and 90,805 girls in 1979-80. The same has increased to 4848 in 1987-88. There were in all 34,706 primary schools in 1979-80, the same has increased to 38,731 in 1987-88. Enrolment in primary schools increased from 49,49,275 in 1979-80 to 64,59,115 in 1987-88. In order to promote education various programmes have been implemented by Karnataka, such as Formal Education of Children between 6-14 age group, Non-Formal Education and also Adult Education Programme, etc.

Karnataka has offered several incentive schemes in order to promote education at the primary level. These schemes include the following:

1. Attendance scholarship to girls
2. Free supply of textbooks
3. Mid-day meals
4. Pre-matric scholarship
5. Merit scholarship
6. Hostel facilities
7. Residential school facilities

As a result of all these schemes, enrolment recorded an impressive growth at the aggregate level. Under the compulsory education scheme more than 97% of children in the age group of 6-10 were covered. Though the gross enrolment was impressive the net-enrolment was far below (about 60%) the gross enrolment which was above 90%. The reason for such insignificant level of net enrolment was the high rate of school dropout due to compelling economic factors which forced children to get employed. Achievement with regard to secondary school has been quite impressive. The number of High Schools and Junior Colleges which stood at 2766 (2497 H.S. + 269 Jr.C) in 1979-80 increased to 4307 (3548 H.S. + 759 Jr.C) in 1987-90. There was phenomenal growth in the number of teachers in the state especially in LPS and HPS during the period under study.

The progress at the aggregate level appears to be very impressive. However, we have to see whether it is so even at the disaggregate level.

A study of inter-district spread of educational facilities reveals excessive concentration of these facilities in a few metropolitan centres. The distribution of educational facilities is lopsided and uneven in the state. Inter-district variations in educational development is clearly brought out by a few general indicators of educational development such as, literacy level, female literacy, rural literacy, school enrolment, school buildings and availability of teachers and so on. As the persistence of disparities lead to various socio-economic and political problems it is essential to see that educational opportunities are spread all over the state and among the districts in an equitable manner. The states which are lagging behind should be helped to catch up with the advanced regions. In this exercise an attempt is made to examine the spread of educational facilities among different regions and to analyse the extent of and trends in regional disparities in educational development.

Inter-district Variation in Literacy Rate

For the purposes of education the state is generally divided into 20 districts (19 revenue districts and Bangalore district is divided into two, viz. Bangalore rural and Bangalore urban). However, in this paper we are analysing only by taking 19 revenue districts.

The performance of districts with regard to literacy growth is not uniform. In order to study literacy rate we have selected the following three indicators:

1. Overall literacy rate
2. Female literacy rate, i.e. percentage of female literates to total female population
3. percentage of rural literates to rural population

The district-wise data for 1979-80 and 1987-88 are given in the first three columns of Tables 1 and 2. It may be observed that Gulbarga and Raichur have the lowest literacy rate in Karnataka. Gulbarga, had only 18.70 per cent literates in 1979-80 while Raichur had 20.20%. The relative position of Gulbarga compared to Raichur improved as the percentage of literates improved to 24.9 in 1987-88. As may be seen from Table 3, there has been an upward shift in the case of all the districts with respect to literacy rate. The lowest group having less than 25% literates, had 4 districts in 1979-80, and in 1987-88 the number reduced to two and even these 2 districts moved upward to about 25% literacy level. Bidar and

Table 1 Indicators of educational development 1979-80

District	% literates	% female literates	% rural literates	% enrolment in LPS + HPS to pop in 0-14 age	% enrolment in H.S. + JrC to pop in 15-24 age	Schools per 100 sq. km	Schools per 10,000 pop in 0-24 age	Teachers per 10000 pop. in 0-24 age	% trained teachers	% non-single teacher schools
1	2	3	4	5	6	7	8	9	10	11
1. Bangalore	42.70	33.30	24.70	50.41	18.32	51.21	20.38	96.74	84.19	60.70
2. Belgaum	30.70	18.30	25.40	39.42	13.42	17.98	16.67	75.81	86.91	66.12
3. Bellary	25.10	14.60	19.70	37.93	11.33	13.46	20.17	44.00	87.65	62.39
4. Bidar	20.02	8.69	16.72	37.29	11.35	15.15	17.04	68.55	80.73	51.87
5. Bijapur	27.48	14.30	22.95	34.87	12.02	12.36	17.95	71.20	87.78	67.26
6. Chikmagalur	34.90	25.40	31.60	41.52	16.56	18.60	29.86	85.10	87.84	45.78
7. Chitradurga	31.40	20.20	26.40	37.53	15.36	18.19	23.27	97.50	76.56	51.18
8. D. Kannada	43.45	35.04	38.82	41.77	21.10	22.53	16.08	104.22	90.36	85.44
9. Dharwad	38.50	25.00	25.00	42.89	14.08	16.12	15.89	76.78	86.40	76.35
10. Gulbarga	18.70	8.60	14.10	31.54	9.79	11.08	17.83	62.71	70.54	38.81
11. Hassan	30.56	19.74	26.80	39.72	14.14	31.45	32.10	83.03	79.30	42.26
12. Kodagu	44.30	37.79	41.72	35.11	19.54	10.43	18.76	99.46	86.27	79.58
13. Kolar	27.06	17.15	20.52	42.37	14.17	30.32	28.66	79.60	77.59	41.76
14. Mandya	22.51	13.06	19.39	38.96	13.02	33.28	23.99	62.72	86.58	50.06
15. Mysore	25.60	17.60	16.80	36.16	12.08	20.99	20.49	67.12	84.59	58.77
16. Raichur	20.20	9.30	17.50	26.81	7.75	11.07	18.82	54.49	82.57	29.59
17. Shimoga	36.60	26.90	31.60	41.82	19.47	20.09	25.96	81.46	79.18	53.14
18. Tumkur	29.40	18.30	26.10	41.53	17.58	26.81	29.94	84.13	88.07	42.49
19. U.Kannada	40.60	31.20	37.20	42.14	17.22	16.90	33.81	103.59	83.85	48.59

Table 2 Indicators of educational development 1987-88

District	% literates	% female literates	% rural literates	% enrolment in LPS + HPS to pop in 0-14 age	% enrolment in H.S. + JrC to pop in 15-24 age	Schools per 100 sq. km	Schools per 10,000 pop in 0-24 age	Teachers per 10000 pop. in 0-24 age	% trained teachers	% non-single teacher schools
1	2	3	4	5	6	7	8	9	10	11
1. Bangalore	45.8	36.3	31.5	53.21	21.84	61.25	17.31	98.19	89.35	68.68
2. Belgaum	36.6	24.1	30.9	33.67	18.02	19.77	15.31	79.34	95.80	73.54
3. Bellary	30.6	19.3	24.1	39.10	17.75	14.98	16.85	70.77	94.57	66.15
4. Bidar	26.4	14.3	21.8	59.70	19.04	20.88	19.79	96.77	97.13	66.67
5. Bijapur	32.0	18.5	27.0	46.02	21.13	14.37	17.20	79.58	94.32	77.90
6. Chikmagalur	43.5	34.0	39.9	44.09	17.64	24.83	33.11	89.48	92.79	57.27
7. Chitradurga	38.3	27.1	32.7	40.57	17.03	20.27	20.86	85.70	93.84	61.19
8. D. Kannada	53.5	45.0	48.9	59.01	21.07	25.07	15.04	92.78	95.58	86.85
9. Dharwad	42.4	29.8	36.6	45.21	15.50	18.14	14.12	76.72	98.30	86.20
10. Gulbarga	24.9	13.3	18.9	37.53	12.81	13.09	17.66	67.87	91.43	61.42
11. Hassan	37.5	26.1	33.6	44.29	16.68	38.20	32.47	85.77	95.34	51.62
12. Kodagu	50.1	43.3	47.4	43.29	33.44	11.68	18.42	98.50	92.62	79.34
13. Kolar	33.6	22.6	26.5	29.28	17.99	35.80	27.18	84.70	91.63	51.33
14. Mandya	30.4	19.9	27.0	42.87	17.98	37.96	22.40	72.00	87.39	55.27
15. Mysore	31.3	23.0	21.7	41.29	14.47	24.56	19.61	72.31	93.32	62.78
16. Raichur	24.7	13.4	21.0	33.25	12.42	11.98	16.12	54.71	95.10	40.13
17. Shimoga	44.4	34.6	38.9	47.31	18.67	23.44	24.38	80.72	94.17	57.60
18. Tumkur	36.9	25.1	33.3	47.14	23.39	31.01	29.61	96.61	97.99	49.68
19. U.Kannada	48.3	39.0	43.6	44.50	18.36	17.70	28.95	100.74	98.77	49.89

Table 3 Shift in the literacy level

% of literates	1979-80	No.	1987-88	No.
0-25	Bidar, Mandya, Gulbarga, Raichur	4	Gulbarga, Raichur	2
25-30	Bellary, Bijapur, Kolar, Mysore, Tumkur	5	Bidar	1
30-35	Belgaum, Chikmaglur, Chitradurga, Hassan	4	Bellary, Bijapur, Kolar,Belgaum,Mandya, Mysore,Chitradurga, Hassan, Tumkur	9
35-40	Dharwad, Shimoga, U.	3	Chikmaglur, Dharwad, Shimoga	3
40-45	Kannada. Bangalore, D. Kannada , Kodagu	3	U. Kannada , Bangalore	2
45-50	—	—	—	—
50	—	—	Kodagu	1
		19		19

Mandya which were in the lowest group moved to the next two groups. Thus Bidar came under 25-30% level and Mandya to 30-35 per cent level in 1987-88. Similarly, other districts like Bellary, Bijapur, etc., also moved to the next higher category. Similar progressive shift is observed even in the case of districts like Bangalore, Dakshina Kannada, Kodagu, etc. They also moved to their next higher level. This movement clearly shows the phenomenal progress of the state in terms of literacy level. Similar trend may be noticed from Tables 2 and 3 with regard to female and rural literacy level.

Inspite of the fact that there has been an upward movement in the literacy rate, inter-district disparities appear to have gone up during the period under study. This is evident from the coefficient of variations given below:

	CV in 1979-80	*CV in 1987-88*
Literates %	24.89%	26.52%
Female literates %	39.77%	40.75%
Rural literates %	31.79%	29.56%

The disparities in terms of rural literacy rate have come down, while the other two indicators reflect increase in inter-district disparities.

Indicators of Educational Development and Inter-district Disparities in Karnataka

The above analysis of literacy rate is one way of assessing regional variation and trends in disparities. Similar analysis can be done for other variables given in Tables 1 and 2. However, in order to have a comprehensive view of the extent of educational development, extent of disparities and overall trends in regional disparities, instead of analysing various indicators individually as done above, it would be better to deal with them combinedly. In order to assess an overall level of educational development, it is worthwhile to take a number of indicators, and to derive a composite index of development of education sector. Because, it is likely that a district which ranks very high in terms of literacy may be ranked very low in terms of educational infrastructure and so on and hence to overcome such problems and to have a composite picture of the attainment of a district, we have followed the method of composite index of development.

Indicators of Educational Development

Levels of educational development (ED) can be assessed both with the help of flow variables like student enrolment and the stock variables like percentage of literates, etc.

As the stock position of population educated by various levels of education is not available for the districts, we had to be satisfied with flow variables and literacy rate. Considering the availability, consistency, uniformity and reliability of data, we have selected the following ten variables to analyse the problem of disparities.

I) Literacy

- i) Overall percentage of literates
- ii) Percentage of female literates to female population
- iii) Percentage of rural literates to rural population

II) Enrolment

- i) Student enrolled in primary schools (LPS + HPS) as % of population in the age group 0-14 year
- ii) Students enrolled in High School and Composite Junior Colleges as percentage of population in the age group 15-24 year

III) Schools

- i) Number of schools (LPS+HPS+HS+Jr.C) per 100 sq km
- ii) Number of schools per 10,000 population in the age group 0-24 year
- iii) Percentage of schools other than single teacher school to total number of schools

IV) Teachers

- i) Teachers per 10,000 population in the age group 0-24 year
- ii) Percentage of trained teachers

One can have many other indicators such as availability of class rooms, library facilities, laboratories and so on, and percentage of drop outs, etc. but the availability of comparable and reliable data was one constraint before us. It was also thought of including teacher-student ratio in our analysis, as it does reflect the level of educational development in normal circumstances. However, in our analysis, it was found that in rural areas number of teachers per 100 students was much higher than in the urban areas. Based on this we cannot really say that rural areas are more developed than the urban areas. Such a situation arises because, as a matter of government policy schools are opened and teachers are recruited in the rural areas, however, due to lack of educational consciousness and due to compelling economic pressures, rural people do not send their children to schools in the same way as the urbanites. Hence, number of students attending school declines resulting in high teacher-student ratio. Thus, considering all these aspects, it was decided to retain the above 10 indicators of education in this study. Data for these indicators are collected from the Deputy Director of Public Instruction office and from the various census.

Composite Index of Educational Development

In order to derive a composite index of development for two time points, viz. 1979-80 and 1987-88, first data for the 10 variables were converted into indicators and by pooling the cross section (19 districts) and two time points, factor analysis was done. The composite index of education is thus derived by using the following factor-analysis equation:

$$\begin{aligned} ED_i = {} & .957Z_1 + .941Z_2 + .908Z_3 + .686Z_4 + .858Z_5 \\ & + .303Z_6 + .082Z_7 + .817Z_8 + .544Z_9 + .606Z_{10} \end{aligned} \qquad (1)$$

where, ED_i = Composite index of educational development $i = 1, 2, \ldots,$ 19 districts

$$Z_i = \frac{X_{ji-x}}{S_{x_j}}, j = 1, 2, \ldots, 10 \text{ variables/indicators}$$

The factor loadings are used as weights in the above equation. Using the above equation factor score or composite index value for each of the 19 districts for 1978-79 and 1987-88 are worked out. The index values are displayed in Table 4. It may be observed from the table that the districts of Bangalore, Kodagu, D. Kannada and U. Kannada have recorded positive index values reflecting high level of ED in 1979-80. While Shimoga and Chikmaglur had very low but positive index value. The districts of Raichur, Gulbarga, Bidar, Bellary recorded the highest negative values depicting their extreme backwardness. In 1987-88, it may be observed that all the districts have recorded higher index values compared to their score in 1979-80. Another interesting feature is that all the districts except Bellary, Gulbarga, Kolar and Raichur, have scored positive values, implying that they have attained the levels of Shimoga and Uttar Kannada districts of 1979-80. Even those districts which scored negative values, have shown sufficient progress compared to 1979-80. Thus Raichur which scored – 4.758 in 1979-80, improved its score to – 2.896. This is very clear from Table 4, that during the period between 1979-80, there has been significant improvement in the educational facilities in the state and consequently education development has taken place.

However, the increased growth of educational facilities and the spread of education was not sufficient enough to bring down the level of inter-district disparities. As is clear from the coefficient of variation worked out for the two years in spite of a decline the level of disparity among the districts remains glaring. In fact, there is very little change in the relative positions of the districts as the rank coefficient of correlation is found to be as high as + .921. In fact, the districts which are generally considered as developed in terms of District Income, are found to be advanced educationally also. The districts of Bangalore, D. Kannada and Kodagu have very high income due to non-agricultural sector and plantation crops. On the other hand, districts of Raichur, Gulbarga, Bidar, Bijapur, etc. which have low level of income are found to be educationally also backward. Further, the districts which have predominant metropolitan centres are also found to be educationally forward.

Table 4 Educational development index

District	1979-80	Rank	1987-88	Rank
1. Bangalore	1.740	3	3.208	3
2. Belgaum	-1.064	10	.398	14
3. Bellary	-2.837	16	-.622	17
4. Bidar	-3.335	17	.696	11
5. Bijapur	-1.935	13	.547	12
6. Chikmaglur	.041	6	1.986	6
7. Chitradurga	-.901	9	.802	10
8. D. Kannada	2.834	1	4.901	1
9. Dharwad	-.051	7	1.704	8
10. Gulbarga	-4.695	18	-2.153	18
11. Hassan	-1.157	11	1.059	9
12. Kodagu	2.201	2	4.698	2
13. Kolar	-1.787	12	-.369	16
14. Mandya	-2.404	15	.410	13
15. Mysore	-2.351	14	.654	15
16. Raichur	-4.758	19	-2.896	19
17. Shimoga	.176	5	2.007	5
18. Tumkur	-.664	8	1.878	7
19. U.Kannada	1.256	4	2.910	4
X	-1.036		1.51	
S_x	2.146		1.57	
CV%	207		103.97	
Rank correlation		.921		

Based on the composite index, the following development pattern (as given in Table 5) emerges. In general, the Hyderabad Karnataka, and Northern Maidan districts are educationally backward. While the coastal, and Southern Maidan districts are in general progressive, the Malnad and transitional zone are moderately developed in terms of education.

Inspite of wide inter-district disparities a comparison between 1987-88 and 1979-80 brings forth a welcoming shift from the lower slab to the higher slab by all the districts. The districts of Bellary, Hassan and Tumkur have moved by two to three slabs. Gulbarga and Raichur have also moved one slab upward thus recording educational progress.

Table 5 Grouping of districts according to index-values

Development range	1979-80	1987-88
5.00 - 3.00	—	D . Kannada Kodagu
2.99 - 2.00	D. Kannada, Kodagu	Bangalore, U. Kannada, Shimoga
1.99 - 1.00	Bangalore, U. Kannada	Chikmaglur, Tumkur, Dharwad, Hassan
.99 - 0.00	Shimoga, Chikmaglur	C.Durga, Bidar,Bijapur, Mandya, Mysore,Belgaum
– 0.01 - – .99	Darwad,Tumkur,C.Durga	Kolar, Bellary
– 1.00 - – 1.99	Belgaum, Hassan, Kolar, Bijapur	—
–2.00- – 2.99	Mysore, Mandya, Bellary	Gulbarga, Raichur
–3.00- – 3.99	Bidar	—
–4.00- – 4.99	Gulbarga, Raichur	—

2.00 - 5.00	Extremely developed
1.00 - 1.99	Highly developed
– .99 - +.99	Average
– 1.00 - – 2.99	Backward
– 3.00- - – 3.99	Highly backward
– 4.00- - – 4.99	Extremely backward

Conclusions

In Karnataka, though inter-district disparities at present are quite large yet they have decreased from .207% to .104% over the period under study. The existing disparities are not alarming. The disparities have been there because, all the districts are progressing at different pace. In fact, the absolute performance of districts which were very much lagging behind in 1979-80, is quite encouraging, though, their relative performance is not all that good. Considering the pace at which all the districts are progressing both relatively and in absolute terms, disparities are likely to persist for another one to two decades to come. But, one need not get worried about this sort of disparity. Such disparities are expected to be there in the initial stages of development and once the economy attains maturity, regional disparities in educational development are bound to get narrowed down considerably.

TWENTY SEVEN

Removal of Regional Variations in Primary Education in Kerala: Facts and Factors

P.R. Gopinathan Nair

At the time when Kerala came into existence, consequent on the reorganisation of States on linguistic basis in 1956, significant differences existed between the Malabar and the Travancore-Cochin regions in the structure and extent of coverage of education system. Malabar which had remained a part of the erstwhile Madras presidency during the British rule had a late start in the promotion of primary education on a massive scale, say, only since the 1920's, whereas in the Travancore-Cochin region, under the aegis of the Kings and their Dewans, the process of educational development had begun in a big way as early as the 1860's. Factors such as tenancy reform legislations, development of transport and communications, growth of international trade, implementation of administrative reforms and commercialisation of agriculture including growth of the plantations sector, which emerged simultaneously during the same period in the Travancore-Cochin region brought about sharp changes in its socio-economic structure and production relations. From the new ethos thus created also emerged numerous social reform movements from among the various communities and social groups.

The previously handicapped social groups, handicapped both by economic deprivation and social taboos, such as the Ezhavas and the Pulayas, organised themselves and staked their claims to social and economic rights including their right to education and entry into administrative positions in government. On the other hand, communities such as the Nairs and the Nampoothiris who were losing their traditional positions of power and privilege in society as landlords and claimants to government jobs had also to organise for purposes of defending their positions and prestige. Progressive elements from among these communities found in the collapse of their age-old caste and community beliefs and practices, an opportunity to change and progress. They began a struggle for social reforms within their respective communities and efforts to develop their up-coming generations educationally with a view to equipping them to wage battles in the emerging situation of intense economic competition. Christians of most denominations, particularly the Syrian Catholics and the Protestants, came to occupy influential positions in the plantation industry, commercial agriculture, trade and commerce, banking and education. Thus the Travancore-Cochin area witnessed a period of intense competition among the different communities for modernisation and stronger positions in the social, economic and, later, political, fronts much in advance of the emergence of similar struggles in the Malabar region. Education was considered, by all the groups in the Travancore-Cochin regions to provide to them the arsenal for their struggles. The demand for education found ready response from the governments in Travancore and Cochin and from the private educational management agencies in the region.

In contrast, majority of the people in Malabar, particularly the population in that region comprising the Muslims and the scheduled castes and tribes, remained either indifferent to, or were effectively prevented from institutional education till a much later period. The educational differences which existed between the two regions on the eve of the formation of the present State of Kerala are reflected in Table 1.

Table 1 Percentage of enrolment in school to total regional population 1956-57: Travancore-Cochin and Malabar

Region	Lower Primary			Upper Primary			Secondary		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
Travancore-Cochin	8.3	7.4	15.6	2.2	1.8	4.0	2.1	1.4	3.5
Malabar	5.8	4.7	10.6	2.1	1.3	3.5	0.8	0.3	1.2

The following were the major differences:

a) enrolment rate at the lower primary stage in Malabar was only about two-thirds of that in Travancore-Cochin;

b) at the upper primary stage enrolment rate in Malabar was about 90% of that in Travancore-Cochin;

c) the proportion of girls to boys was lower in Malabar both at the lower and the upper primary stages;

d) the secondary stage in Malabar was much behind that in Travancore-Cochin in the levels of development and in the proportion of girls enrolled.

The coming into existence of the state of Kerala heralded a new era in the growth of education. The educational system has since then developed rapidly at all stages — primary, secondary and tertiary. More important, much of the differences which had existed between the Malabar and the Travancore-Cochin regions have disappeared. Of particular significance of this growth with equalisation process are the spread of the primary education system and the near-attainment of the goal of universal enrolment. In the following discussion, we shall first show the extent to which these goals have been reached and then pass on, in the second section to consideration of the more important causative factors.

Performance of the Primary Education System since 1957

During the late 1950's and the 1960's educational backwardness of Malabar was a recurring topic of discussion in the Legislature, the policy statements of the Ministers and the propaganda campaigns of political parties in the State. However, during the past two decades, this subject did not come up for serious debate in any public fora. The problem has had its solution almost entirely in a smooth and steady process of unequal expansion for attainment of equal development in the two regions.

A rough and ready idea of the pattern of change that has taken place may be obtained from the figures furnished in Table 2.

Table 2 Schools, teachers and pupils in the Malabar region: as proportion to totals for Kerala as a whole (in percentage)

Year	Lower Primary			Upper Primary		
	Schools	Teachers	Pupils	Schools	Teachers	Pupils
1957-58	54.1	38.0	23.7	50.6	35.6	34.1
1967-68	48.0	39.4	35.0	46.4	42.4	27.0
1977-78	—	—	41.9	—	—	35.0
1987-88	47.8	47.0	48.0	49.9	41.2	43.7

During the decade 1957-58 to 1967-68, enrolment (and the number of

Table 3 Enrolment in standards I and II (sex-wise), total population and percentage of enrolment to total population, 1987-88

Region/ District	Enrolment in standard I			Enrolment in Standard II			Population in 1987 (in thousand)	Enrolment as per cent of population	
	Boys	Grils	Total	Boys	Girls	Total		Std I	Std II
1	2	3	4	5	6	7	8	9	10
Trivandrum	30,006	29,185	59,191	29,387	29,304	58,691	2,889	2.05	2.03
Quilon	24,725	23,911	48,363	26,256.	25,167	51,423	2,441	1.99	2.11
Pathanamthitta	11,404	11,228	22,632	12,521	11,897	24,423	1,233	1.84	1.98
Alleppey	17,786	17,127	34,913	20,082	19,296	39,378	2,096	1.68	1.90
Kottayam	17,831	16,666	34,497	19,527	17,964	37,491	1,889	1.83	1.98
Idukki	10,724	10,132	20,856	11,414	10,806	22,220	1,079	1.93	2.06
Ernakulam	25,939	24,833	50,772	28,757	26,831	55,588	2,822	1.80	1.97
Trichur	29,011	27,407	56,418	32,143	29,961	62,004	2,715	2.08	2.23
Travancore Cochin	167,426 (52.2%)	160,489 (51.9%)	327,915 (52.1%)	179,992 (51.1%)	171,226 (51.1%)	351,218 (51.1%)	17,144 (60.5%)	1.91	2.06

Palghat	31,175	29,467	60,642	32,295	30,370	62,665	2,275	2.67	2.75
Malappuram	40,897	42,766	83,663	48,162	46,768	94,930	2,674	3.13	3.55
Kozhikode	30,402	28,811	57,213	34,554	32,838	67,384	2,499	2.37	2.70
Wayanad	8,814	8,291	17,105	9,215	8,899	18,114	617	2.77	2.94
Cannanore	26,932	25,718	52,650	31,999	29,926	61,925	2,149	2.45	2.88
Kasaragode	15,013	13,852	28,865	16,277	14,868	31,145	971	2.97	3.21
Malabar	153,233 (47.8%)	148,905 (48.1%)	302,138 (47.9%)	172,502 (48.9%)	163,661 (48.9%)	336,163 (98.9%)	11,185 (39.5%)	2.70	2.99
Kerala	320,659 (100.0)	309,394 (100.0)	630,053 (100.0)	352,494 (100.0)	334,887 (100.0)	687,381 (100.0)	28,329 (100.0)	2.22	2.43

teachers) increased at very high rates in both the regions; at the lower primary stage, the increase in enrolment was as follows:

Travancore-Cochin area : From 1307.6 thousand to 1743.3 thousand (by 33.3 per cent)
Malabar area : From 537.1 thousand to 937.1 thousand (by 74.6 per cent)

The corresponding figures for the upper primary stage were:

Travancore-Cochin area : From 396.7 thousand to 803.2 thousand (by 102.5 per cent)
Malabar area : From 205.6 thousand to 298.6 thousand (by 45.2 per cent)

Reckoned in terms of such aggregates, we thus find (from Table 2) that Malabar region which was not behind the Travancore-Cochin area in respect of the number of schools and the number of teachers (the population in Malabar accounting for about 37 per cent during the 1950s), lagged way behind in enrolment, particularly enrolment at the lower primary stage. The growth rate of enrolment at the lower primary stage to be achieved in Malabar therefore received special attention during the years which immediately followed. In fact, it was as high as 102.5 percent during 1957-58 to 1967-68. Once the lower primary stage of school was developed on an adequate basis, the efforts were on to bring the higher stages also on a level with those in the Travancore-Cochin region.

These aims have already been achieved as the figures for 1987-88, given in Table 2 clearly suggest. In fact, we find today higher levels of enrolment in Malabar than what the proportion of its population would warrant. For instance, enrolment in the first year (or the second year) of lower primary school, as a proportion of population is much higher in Malabar than in Travancore-Cochin. One major reason for this observed higher rate must be the larger proportion of children of the school-going age to total population in the Malabar area, due to the relatively higher birth rates (death rates remaining almost similar between the two regions) which prevailed, and are still prevailing in that region.

Enrolment in standards I and II by regions/districts in 1987-88, the population in 1987, and the proportion of enrolment to total population are furnished in Table 3.

A major difference between the two regions observed earlier with regard to enrolment at the primary stage was the lower proportions of girls enrolled in the Malabar region. The extent to which such differences have disappeared is shown in Table 4.

In 1987-88, the proportions of girls enrolled to total enrolment are seen to have been about the same, in both the regions, at the lower and the upper stages of primary education. A district-wise statement of the sex-wise and standard-wise proportions of enrolment, is given in Appendix 1.

Due to the steady improvements made in the performance at the primary school stage, the retention rates have risen in the Malabar region. At the lower primary stage, there does not exist any longer perceptible differences between the two regions in the rates of retention; however, at the upper primary stage differences are large even though steady improvement has been taking place at this level too; see Tables 5a and b.

Table 4 Proportion of enrolment of girls to total enrolment
Region-wise (per cent)

Stage of school	Year	Travancore-Cochin	Malabar
Lower primary	1957-58	46.4	45.4
	1977-78	48.6	48.2
	1987-88	48.7	48.8
Upper primary	1957'58	46.2	40.3
	1977-78	47.9	45.8
	1987-88	48.8	48.6

Table 5a shows that enrolment in both the regions in Standard II was higher than in Standard I of the previous year; such a phenomenon is observed in the Travancore-Cochin region in Table 5b also. The reason for this apparently absurd result (since the number of pupils passing on to a higher standard on promotion cannot exceed the total number enrolled in a standard) is the fact that large numbers of pupils are admitted to the first standard in October-November, several months after the beginning of the academic year (in June) and the collection of educational statistics. The mid-year admission takes place after the Navaratri (Durga Pooja) festival. This practice is followed in all the districts of Kerala. However, owing probably to the fact that the number of dropouts during the year exceed the number admitted mid-year, the number reaching standard II in the next year is found to be, in the Malabar region, lower than the reported numbers for standard I. However there is no possibility of

Table 5 Retention rates of pupils in primary education, sex-wise and region-wise
(a) Rates for the period 1973-74 to 1979-80

Region	Sex	Enrolment in standards II to VII in percentages of enrolment in standard I or strandard II						
		I in 1973-74	II in 1974-75	III in 1975-76	IV in 1976-77	V in 1977-78	VI in 1978-79	VII in 1979-80
I Travancore Cochin	Boys	198,202	204,626	95.2	91.8	93.1	87.3	90.1
	Girls	186,971	190,913 (100.0)	95.8	92.1	97.0	88.8	89.9
II Malabar	Boys	132,882	135,598 (100.0)	92.5	93.8	85.9	76.8	64.0
	Girls	124,251 (100.0)	124,499 (100.0)	94.3	91.0	81.2	72.3	66.9
Kerala (I + II)	Boys	331,084	340.225 (100.0)	94.1	92.6	90.3	83.1	82.4
	Girls	311,222	315,412 (100)	95.2	91.6	90.8	82.3	80.8

(b) Rates for the period 1981-82 to 1987-88

Region	Sex	Enrolment in standards II to VII in percentages of enrolment in standard I or standard II						
		I in 1981-82	II in 1982-83	III in 1983-84	IV in 1984-85	V in 1985-86	VI in 1986-87	VII in 1987-88
I Travencore-Cochin	Boys	177,453	182,902 (100.0)	96.7	96.8	98.3	96.3	91.5
	Girls	169,692	174,528 (100.0)	96.8	96.3	96.9	95.7	92.8
II Malabar	Boys	154,251 (100.0)	93.9	96.4	95.5	91.6	85.0	79.0
	Girls	144,484 (100.0)	95.3	97.7	96.2	90.6	86.4	82.2
Kerala (I + II)	Boys	331,794 (100.0)	98.8	98.1	97.8	96.8	92.6	87.3
	Girls	314,175 (100.0)	99.4	98.7	97.7	95.5	92.9	89.3

checking out the figures of mid-year admissions and dropouts in standard I for want of the required information.

In the past few years, admissions of pupils to higher standards after private study take place in large numbers. The educational rules in Kerala permit such admissions (to be made after conducting suitable tests) upto and including standard VII. The private study is done sometimes at home, but in most cases, it is done in private, unaided unrecognised schools which have mushroomed in the state in recent years. In consequence, the transition ratios (showing the proportion of pupils enrolled in a class moving on to the next higher standard in the next year) are found to exceed unity in several standards and in most districts; see Appendix 2 for the transition ratios from 1986-87 to 1987-88. However, even in this respect, the ratios are found to be, in general, marginally lower in the districts in the Malabar region.

Owing to mid-year admissions in standard I and fresh admissions, after private study, to higher standards, it is not possible, on the basis of available statistics, to calculate drop-out rates for an initial standard I cohort of any given year through the entire period during which it remains in the primary school system. An indication of the drop out rates may be obtained, however by the proportions of enrolment in each region/district to total enrolment in the state for each individual class. The proportions are given in Appendix 3. They suggest that dropout rates remain higher in the districts of Malabar. For instance, the proportions of enrolment in Standard I in 1987-88 in the Malabar region were 47.8 percent for boys and 48.2 percent for girls; in standard IV the corresponding proportions were only 47.0 and 47.2 respectively; but in standard VII, they were much lower, only 42.2 percent for boys and 42.3 percent for girls. The significant fact to observe is that the proportion of girls has risen to equal to the proportion of boys till the end-year of the primary school stage (std.VII) in Malabar also.

Factors of Educational Performance

The phenomenal expansion of primary education in all the regions of Kerala and the virtual removal of regional variations in coverage, sex-ratios and retention rates at the primary school stage were rendered possible by a variety of factors, social, economic and political. Particular mention may be made of institutional reforms, population movements, demographic transition, income increase, efforts made by voluntary agencies, and educational policies. It is not possible to quantify their impact on performance of the education sector, but their influence cannot be denied. May be, the way they influenced the demand for education was only indirect. We propose to indicate some of the more important among such factors in the following section.

We have already pointed out that Malabar had remained isolated from most of the currents of socio-economic change which were flowing across the society of Travancore-Cochin during the colonial period, particularly since the 1850s. In Travancore and Cochin land tenancy legislations were made several times starting from 1857. Social reform movements were also numerous and strong. Significant changes took place in the structure of the economy too. Yet, the agricultural population in the Travancore-Cochin region remained still dissatisfied at the time of Independence; concentration of land ownership in the hands of rich peasants was widespread; tenancies of an extortionary nature prevalied. There was strong popular demand for abolition of tenancy, redistribution of agricultural land and conferment of security of tenure to cultivators. While in most other parts of India, land reforms came virtually to an end with the abolition of the Zamindari system by 1956, in Kerala a process of land reforms of a much more comprehensive nature began in the late 1950s and continued through the 1960s and came to a close only in the early 1970s. Even though it is by now widely acknowledged that the land reforms in Kerala have not completely succeeded to give cultivable land to the tiller, the structure of land ownership has undergone a sea-change, with much larger sections of the society coming into ownership status in land. Of particular interest is the dismantlement of the feudalistic structure of land ownership which existed in the Malabar region. A more widespread participation of the agricultural population in the economic activities in the rural areas of Kerala must have acted as an incentive to social progress among the weaker sections on the lines similar changes of the late nineteenth century in the Travancore-Cochin region had done. The demand for education went up sharply from among all such sections.

During the period beginning from the early 1950s and extending to the early 1970s, massive migration movements took place from the Travancore-Cochin region to the then sparsely populated rural and private forest areas of Malabar. The migrants who consisted of a sturdy peasant folk were instrumental to a considerable extent for the agricultural development of several parts of Malabar, particularly in Wayanad, Cannanore and Kozhikode districts. The areas to which they migrated grew not only in the economic sense, the migrants saw to it that those areas developed also in infrastructural facilities such as roads, banks, dispensaries and schools.

At the time when the peasent migration to the Malabar region was drawing to a close, a large flow of men began from different parts of Kerala to the Arab countries. This process still continues. The Arab migration has brought substantial amounts by way of inward remittances to the state, to the tune of Rs.600 crore per year, particularly to the homes of the economically weak sections since most of the migrants during the 1970s and the early 1980s were poor, unskilled workers. The receipt of substantial amounts in such homes particularly those in the relatively backward and conservative ones (namely of Muslims) in the Malappuram, Trichur, Kozhikode and Cannanore districts and the exposure of the migrants to the world outside, brought great changes in their attitude to life styles, religious practices and educaton. Communities such as the Muslims of south Malabar (say, for example, those in the Malappuram and Trichur districts) who had traditionally followed orthodox religious practices and shied away, in general, from modern, secular education and had been positively against sending their girls to secular educational institutions, have shed much of their superstitions and inhibitions. Now, Malappuram has staked its claim as a highly motivated region so far as education is concerned. Enrolment rates in this district have gone up and drop out rates fallen quite sharply, for both boys and girls in school.

The message of the small family norm has come to be accepted in the state across all regions and communities irrespective of social and economic differences. The process began first in the Travancore-Cochin region where educational development had already been high. Of course, communities such as the Latin Catholic Christians and the Muslims had some reservations about family limitation even in the Travancore-Cochin region.

The opposition was, however, much stronger among the Muslims of Malabar. As a result of the redistributional effects of land reforms, intermingling with the educated people who migrated from the Travancore-Cochin region to take up posts of school teachers and government officials in Malabar, interaction with people and movements which came to Malabar from the Travancore-Cochin regions and the opening up of the people of the area to ideas and affairs of the modern world through international migration, their opposition to education has weakened to a considerable extent. In fact, they realised that it was fully on their part not to catch up with the rest of the society in education. Reduction in the number of children per household and the development of nuclear families in the place of the joint families of the earlier periods, have made it easier for the people in these areas to send their children to school.

In the spread of the message of education far and wide in Kerala, voluntary educational and science-literacy reform organisations have played an extremely useful role. The *Grantha-Sala Sanghom,* the Kerala Adult and Non-formal Education Society (KANFED) and the *Sastra Sahitya Parishad* are some of the more important among them.

The preceding discussion has indicated a few of the factors, which led to a steady rise in the demand for education in all parts of Kerala including those which had remained educationally backward. In response to it, the supply facilities grew under the liberal educational policies of the State government ably supported by efforts of private educational agencies. It is not our argument that the role which the private agencies have been playing in Kerala in recent decades is always one of educational promo-

Table 6 List of uneconomic schools, 1988

Region/District	Number of uneconomic schools		
	Government	Private aided	Total
I. Travancore-Cochin			
Trivandrum	30	13	43
Quilon	13	4	17
Pathanamthitta	44	74	118
Alleppey	30	18	48
Kottayam	16	37	53
Idukki	28	24	52
Ernakulam	24	35	59
Trichur	14	11	25
Total - I	199	216	415
II. Malabar			
Palghat	9	9	18
Malappuram	6	8	14
Kozhikode	9	22	31
Wayanad	3	30	33
Cannanore	35	64	99
Kasaragode	17	23	40
Total - II	79	156	235
Grand Total I+II =	278	372	650

tion per se. There were among them several, purely commercially minded ones, which have led to the growth of corrupt practices in the educational sector such as taking illegitimate gratifications for recruitment of teachers, and undermining the quality and standards of instruction in schools. Yet, by and large, theirs has been a positive and beneficial role. In areas in which the State Government was not in a position to start its own schools, private agencies came forward with land, building, equipment and furniture. In this process the fact that a large number of private schools already existed in the Malabar region was a real help to the government. The task therefore was confined primarily to the standardisation of quality of instruction and improvement of infrastructural facilities in such schools.

In fact in the process of educational expansion at the school level Kerala has over-shot its target as is evidenced by the existence at present of surplus teachers and schools. There exist today 650 'uneconomic' schools (278 in the government sector and 372 in the private sector) and about 3000 'surplus' teachers who are borne on the staff. It should be remembered that the salary of all teachers whether in government schools or private schools, is paid from the state exchequer. The list of uneconomic schools shows that such schools existed in all the districts (see Table 6).

The Government's educational policy during the period till the end of the sixth five year Plan almost exclusively leaned towards rapid, quantitative expansion. It has led to the appearance of schools without adequate infrastructural facilities and to the neglect of the quality of education. A study made recently by the Kerala Government School Teachers Association says about government schools: 908 schools do not have drinking water facilities; 1700 have no latrines; 2899 have no playgrounds; 1388 schools are functioning in thatched sheds; and 750 schools are functioning in rented buildings. A respite to the reckless policy of opening new schools in place and out of place in the name of promotion of education has come to an end only two years ago.

The policy of indiscriminate opening of schools, under the influence of social, political and community pressure groups, even in localities in which no new schools were needed, has resulted in the emergence of ill-equipped schools with inadequate staff and pupils. This policy has had an adverse impact on the quality of education. The deterioration of quality has been aggravated by unrest created by political parties who use teachers and pupils for their partisan ends. Above all, the policy of promoting pupils to higher class without regard to their eligibility, in the name of improving retention rates, has resulted in indifferent teaching and learning and total neglect of the qualitative aspects of education. However these problems are not confined to any particular region or locality; but are problems for the educational system of the state as a whole.

It is now conceded by all educational planners in the state that the time has come to turn to the qualitative aspects. Kerala which spends Rs. 193 per capita (as against the national average of Rs. 119) on education and where expenditure on education claims two-fifth of the states' revenue receipts cannot afford to remain indifferent to the quality of education particularly in the present context in which the State is hard pressed for resources for development of its materially productive sectors.

Appendix I. Enrolment, sexwise, to total enrolment in each standard by region and revenue district, 1987-88 (percentage)

Region/District	Std I		Std II		Std III		Std IV		Std V		Std VI		Std VII		Std VIII	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Trivandrum	50.7	49.3	50.1	49.9	49.8	50.2	51.0	49.0	50.8	49.2	51.1	98.9	50.7	49.3	49.7	50.3
Quilon	50.8	49.2	51.1	48.9	51.1	48.9	51.0	49.0	51.2	48.8	51.4	48.6	51.7	48.3	50.6	49.4
Pathanamthitta	50.4	49.6	51.3	48.7	50.5	49.5	51.0	49.0	51.4	48.6	51.5	48.5	51.8	48.2	50.9	49.1
Alleppey	50.9	49.1	51.1	48.9	51.1	48.9	50.4	49.6	51.1	48.9	50.9	49.1	50.7	49.3	51.0	49.0
Kottayam	51.7	48.3	52.1	47.9	51.8	48.2	51.8	48.2	51.7	48.3	51.1	48.9	50.2	49.8	49.0	51.0
Idukki	51.4	48.6	51.4	48.6	51.5	48.5	52.0	48.0	52.4	47.6	52.8	47.2	50.8	49.2	49.5	50.5
Ernakulam	51.1	48.9	51.7	48.3	52.1	47.9	51.7	48.3	51.7	48.3	51.3	48.7	50.1	49.9	48.9	51.1
Trichur	51.4	48.6	51.7	48.3	52.1	47.9	52.1	47.9	50.9	49.1	51.4	48.6	50.4	49.6	50.0	50.0
Travancore-Cochin	51.1	48.9	51.2	48.8	51.3	48.7	51.5	48.5	51.4	48.6	51.3	48.7	50.8	49.2	49.9	50.1
Palghat	51.4	48.6	51.5	48.5	51.0	49.0	51.5	48.5	52.7	47.3	52.2	41.8	51.8	48.2	52.9	47.1
Malappuram	51.2	48.8	50.7	49.3	51.1	48.9	51.3	48.7	51.6	48.4	51.4	48.6	48.5	51.5	52.4	47.6
Kozhikode	51.3	48.7	51.2	48.8	51.2	48.8	51.2	48.8	51.4	48.6	51.4	48.6	51.4	48.6	50.8	49.2
Wayanad	51.5	48.5	50.9	49.1	51.3	48.7	52.2	47.8	50.8	49.2	51.7	48.3	50.7	49.3	50.4	49.6
Cannanore	51.2	48.8	51.7	48.3	51.3	48.7	50.9	49.1	51.6	48.4	51.3	48.7	50.8	49.2	51.8	48.2
Kasaragode	52.0	48.0	53.3	47.7	51.7	48.3	51.9	48.1	52.6	47.4	53.7	46.3	54.2	45.8	55.8	44.6
Malabar	50.7	49.3	51.3	48.7	51.2	48.8	51.3	48.7	51.8	48.2	51.7	48.3	50.7	49.3	52.1	47.9
Kerala	50.9	49.1	51.3	48.7	51.3	48.7	51.4	48.6	51.6	48.4	51.5	48.5	50.8	49.2	50.8	49.2

Appendix 2 Transition ratio by standards, sex-wise, in each district in Kerala (tansition from 1986-87 to 1987-88) per 10,000 pupils

Region/District	Std I to II		Std II to III		Std III to IV		Std IV to V		Std V to VI		Std VI to VII		Std VII to VIII	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Trivandrum	10249	10444	9107	9539	10162	9887	10784	10760	10010	10075	9366	9454	8995	9414
Quilon	10899	10792	9878	9767	9933	9923	10082	10020	9873	9916	9825	9893	9623	9942
Pathanamthitta	11466	11105	10436	10474	10403	10238	10283	10080	9835	9910	9724	9845	9926	10045
Alleppey	11379	11204	9947	10176	9954	10192	10309	10388	9877	10030	9740	9598	9811	9757
Kottayam	10931	10467	9785	9726	9925	9903	10066	9912	9705	10006	9433	9928	9648	10002
Idukki	11032	10673	10278	10374	10089	10113	10400	10038	9600	9544	9424	9897	9366	9696
Ernakulam	11225	10804	9857	9912	9800	9519	10557	10427	9626	9650	9300	9551	9427	9758
Trichur	11168	10985	9651	9528	9849	9846	10380	9852	9641	9780	9339	9697	9032	9620
Travancore-Cochin	10985	10789	9764	9892	9981	9909	10303	10213	9777	9874	9500	9696	9425	9692
Palghat	11982	11657	9604	10273	9584	10302	9883	9409	9525	8968	9278	8826	9397	8553
Malappuram	11315	11540	10009	9978	9646	9934	9480	9477	9998	9833	9354	10041	8978	8218
Kozhikode	11689	11473	9711	9657	9800	9759	9937	10148	9759	9840	9519	9624	9703	9922
Wayanad	11204	11045	9637	9630	9765	9708	9632	9811	9257	9370	9119	9386	9089	9355
Cannanore	11694	11536	9582	9572	9589	9690	9865	9779	9587	9621	9335	9500	9484	9314
Kasaragode	11050	11026	9479	9795	9493	9558	9514	9208	9337	9285	8998	8993	9250	8846
Malabar	11547	11471	9721	9761	9642	9875	9719	9655	9680	9560	9362	9511	9334	9003
Kerala	11253	11112	9743	9829	9819	9893	10031	9955	9903	9735	9427	9617	9396	9412

Appendix 3 Enrolment in each revenue district as percentage of enrolment in the State 1987-88

Region/District	Boys								Girls							
	Std I	Std II	Std III	Std IV	Std V	Std VI	Std VII	Std VIII	Std I	Std II	Std III	Std IV	Std V	Std VI	Std VII	VIII
Trivandrum	9.4	8.3	8.1	8.7	9.0	9.2	9.2	9.1	9.4	8.8	8.6	8.7	9.3	9.4	9.2	9.5
Quilon	7.7	7.4	7.6	7.7	7.9	8.2	8.7	9.0	7.7	7.5	7.6	7.8	8.1	8.2	8.4	9.1
Pathanamthitta	3.6	3.6	3.6	3.7	3.7	3.8	4.1	4.4	3.6	3.6	3.8	3.7	3.7	3.8	4.0	4.4
Alleppey	5.5	5.7	6.0	5.9	6.4	6.8	7.2	7.6	5.5	5.8	6.0	6.2	6.6	7.0	7.0	7.5
Kottayam	5.6	5.5	5.6	5.8	5.9	6.0	6.3	6.6	5.4	5.4	5.5	5.7	5.9	6.2	6.4	7.1
Idukki	3.3	3.2	3.3	3.4	3.6	3.6	3.7	3.7	3.3	3.2	3.3	3.3	3.5	3.4	3.7	3.9
Ernakulam	8.1	8.2	8.6	8.6	9.2	9.3	9.2	9.4	8.0	8.0	8.3	8.5	9.2	9.3	9.5	10.1
Trichur	9.0	9.1	9.2	9.1	9.1	9.1	9.3	9.2	8.9	8.9	8.9	8.9	9.0	9.2	9.4	9.5
Travancore-Cochin	52.2	51.1	52.1	53.0	54.9	56.0	57.8	59.0	51.8	51.1	52.2	52.8	55.2	56.4	57.7	61.2
Palghat	9.7	9.2	8.9	8.6	8.2	7.9	7.6	7.3	9.5	9.1	9.0	8.6	7.8	7.7	7.4	6.7
Malappuram	12.8	13.7	13.3	13.4	12.2	11.7	10.9	9.7	13.8	14.0	13.4	13.4	12.3	11.8	11.9	9.1
Kozhikode	9.5	9.8	9.7	9.6	9.7	9.7	9.7	9.9	9.3	9.8	9.7	9.7	9.7	10.8	9.4	9.9
Wayanad	2.7	2.6	2.6	2.5	2.3	2.4	2.9	2.1	2.7	2.7	2.5	2.4	2.4	2.3	2.2	2.2
Cannanore	8.4	9.1	9.0	8.7	8.7	8.5	8.2	8.4	8.3	8.9	9.0	8.9	8.7	8.5	8.2	8.0
Kasaragode	4.7	4.6	4.5	4.3	4.0	3.8	3.6	3.5	4.5	4.4	4.4	4.2	3.8	3.5	3.2	2.9
Malabar	47.8	48.9	47.9	47.0	45.1	44.0	42.2	41.0	48.2	48.9	47.8	47.2	44.8	43.6	42.3	38.8
State	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

TWENTY EIGHT

Social Topology and Regional Variations in Educational Development in North-East India

H.N. Sharma

Introduction

Located between 21°59' 40" and 29°40'N latitudes, 89°51'E and 97°25'E longitudes, North-East India, the land of seven sisters — the States of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram and Tripura with an area of 2,55,036 km^2 is a variable cauldron of diverse racial, linguistic and socio-cultural groups. In spite of the region's peripheral and relatively inaccessible location in the country, people from the north, east, south and west across the high Himalayas, hills and valleys of the Patkai and Arakan-Yoma and from the Ganga Valley came to settle in the region since pre-historic times. And the flow is continuing unabated till today and hence is the prevalence of a social topology in the region which is quite complex in character and spatially varying in nature.

What is intended to deal with the social topology in the present work then? The term topology or topography has the same connotation and when it is related to the society, it would naturally mean the character and the diversities prevalent within it. The diversities range from broad racial and religious attributes to language, dialects, food habit, dress pattern, etc. The scope of the theme is, therefore, quite broad and in this study the aspects having relevance to educational development, will only be covered. Thus the emergence of the present society through peopling in different stages, its diversities in terms of religion, language and dialects and its broad social pattern in the region will be treated in the social topology section. In the next section, educational development will be looked at through an analysis of the present pattern of literacy and educational attainment in the region. Data for the study are taken from the Census of India, 1971 and 1981 volumes up to the district level. However, data for Tripura up to the district level have not been available till the preparation of the paper and for Assam 1971 Census and projected data are used, since no census has been held for it in 1981. In any case, nonavailability of data at the desired level has been a major constraint in the preparation of the present work. However, every attempt is made to do justice to the assignment, in spite of all these limitations.

Social Make-up

The region comprises people belonging broadly to four racial traits: Proto-Australoid, Mongoloid, Aryo-Mongoloid and Aryo-Mongolo-Dravidian. Their physical features are, however, very much mixed up and the division in terms of ethnolinguistic groups provides a simpler framework to understand the character of the social groups in the region. Such groups are thus Austro-Asiatic, Tibeto-Chinese comprising Tibeto-Burman and Siamese-Chinese, and Indo-Aryan.

Thus the people from different directions and cultural backgrounds having occupied different territories in accordance with their original tradition and culture have created distinct groups in the total social make-up of the region. In course of time, though there has been intermingling among them, basically the ecological conditions with inaccessible hills in most parts hindering easy communication, extremes of rainfall leading to the growth of dense forests, among other factors, have greatly helped them to maintain their separate socio-cultural identity whatsoever their level of development is. As a result, apart from the groups belonging to different religions, affiliations we find here a mosaic of diversities not only in terms of various castes and creeds of the country but deviantly of innumerable tribes and sub-tribes speaking dialects of diverse origins.

In the religious sphere, the Hindus constitute the majority (66.40 per cent) in the region. It is because the people of the densely populated plains of the region are either of Hindu origin or a good section took to Hinduism or those living adjacent to them, turned into its fold later on. The next largest religious group is the Muslims (19.41 per cent) who are concentrated mostly in the plains and riverine tracts of the Brahmaputra and the Barak Valleys. The Christians make the third major group (9.12 per cent) and are represented mostly by the tribals of the hill areas except for those in Arunachal Pradesh and Tripura. The spread of Christianity in the region began with the coming of the Missionaries under the British rule.

The hill tribes of the region who were adversely affected by the rigidity of Hinduism took recourse to it through conversion under the Missionaries. The people of the areas who remained beyond their access are still practising their own tribal religion and they, in fact, constitute the fourth largest religious group in the region. Compared to the above, the Buddhists make a small group living mostly in the high hills of Arunachal Pradesh, Tripura, Mizoram and Upper Assam Plain. The Sikhs and Jains are the later-days migrants who make a small fragment of the populace being concentrated mainly in the urban and service centres of the region.

Besides the religious grouping, the people of the region are divided into different socio-cultural groups in the form of castes and tribes. The caste system is prevalent among the Hindus here, as in the other parts of the country, but it has a local character evolving out of its own socio-cultural milieu. Thus the number of castes in this region is not only relatively limited but the rigidity of the system is less rigorous as well and certainly the catholicity of Vaishnavism propounded by Mahapurush Sankaradeva and his followers in the late 15th and early 16th centuries was behind the development of this phenomenon. So is the case with the scheduled castes, their number and the population percentage being comparatively less than rest of the country. In any case, the upper castes are concentrated mostly in the fertile plains of the valleys and the urban areas, while the lower or the scheduled castes are distributed in the marginal areas.

Among the Muslims here although sharp caste system is not prevalent, there is social stratification between the indigenous and immigrant Muslims, on the one hand and the different groups among themselves, on the other (Taher, 1987).

The tribes of the region are broadly divided into two groups: plain tribes and hill tribes, the former having more affinities with the advanced social groups of the valleys, while the latter maintaining a keen distinctiveness of their own. In total there are as many as 145 tribal communities, of which 71 are large each having population more than 5,000 (Taher, 1987). Many of these tribes live in contiguous tracts spreading over two or more states of the region. However, they are quite different from each other in socio-cultural characteristics.

Linguistically also people of the region are arranged into three major groups, viz. Indo-Aryan comprising Assamese, Bengali and Hindustani; Tibeto-Chinese comprising Meities, Bodo, Mizo, Karbi, Mishing, etc. and Austro-Asiatic comprising Khasi, Garo, Munda, etc. Besides, there are groups speaking very many dialects in the region. Thus the social structure of the region is highly diverse and complicated.

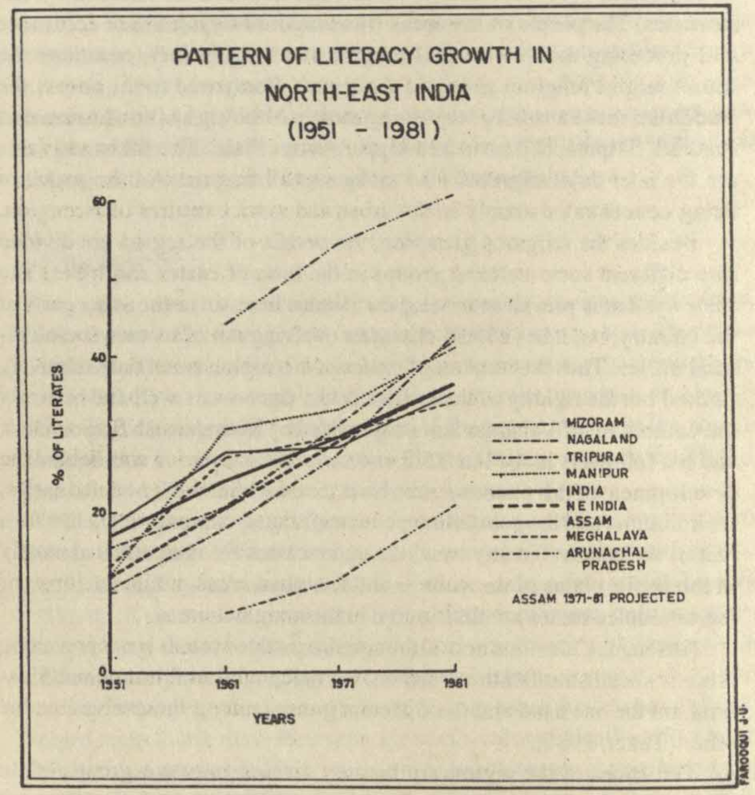


Fig-1

Regional Variations in Educational Development

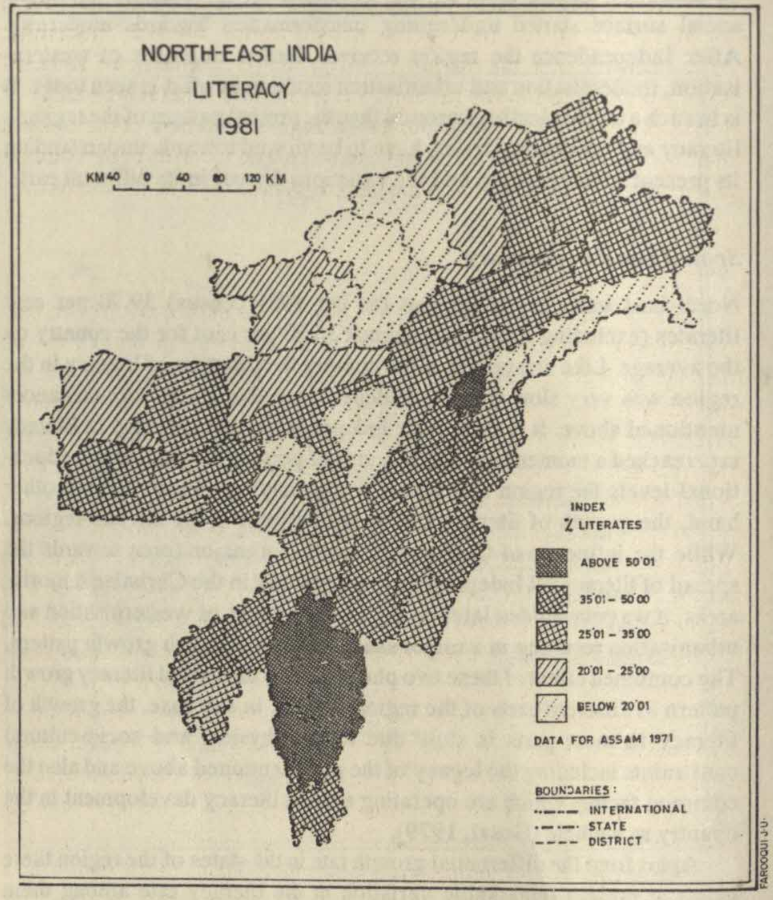
In such a social background combined with the recency of contact of its inhabitants, both tribals and non-tribals, with the modern world, besides isolated location and inaccessible character, the social profile of the region remained mute with low levels of literacy and education till the beginning of the present century. Whatever educational development took place was mainly confined to the Assam Valley because of its legacy of having the influence of Indo-Aryan culture and the patronage of the Vaishnavite movement by the Ahom and Koch Kings subsequently. But it is primarily with the extension of western influence and more so with the mass conversion of the tribals to Christianity combined with the spread of seeds

of education among them by the Missionaries, the regions traditional social surface started undergoing transformation towards modernity. After Independence the region received further impulses of westernisation, modernisation and urbanisation resulting in what is seen today. It is in such a topological background then the present pattern of the region's literacy and educational levels have to be viewed towards understanding its present spatial patterns and the variations thereof in its different parts.

Spatial Pattern of Literacy

North-East India has at present (as per 1981 census) 39.70 per cent literates (excluding Assam) as against 36.20 per cent for the country on the average. Like most parts of the country the progress of literacy in the region was very slow prior to Independence due to the circumstances mentioned above. It is only after Independence that increase in literacy rate reached a momentum. But in terms of persons having certain educational levels the region still presents a dismaying picture. On the other hand, the growth of literacy rate is not uniform in all the sub-regions. While the influence of Christianity acted as a major force towards the spread of literacy till Independence, particularly in the Christian majority areas, it was overridden later by the modern forces of westernisation and urbanisation resulting in a major shake up in its sluggish growth pattern. The combined effect of these two phenomena is the varied literacy growth pattern in different parts of the region (Fig. 1). In any case, the growth of literacy in most parts is slow due to the physical and socio-cultural constraints including the legacy of the past mentioned above and also the common factors which are operating against literacy development in the country as a whole (Gosal, 1979).

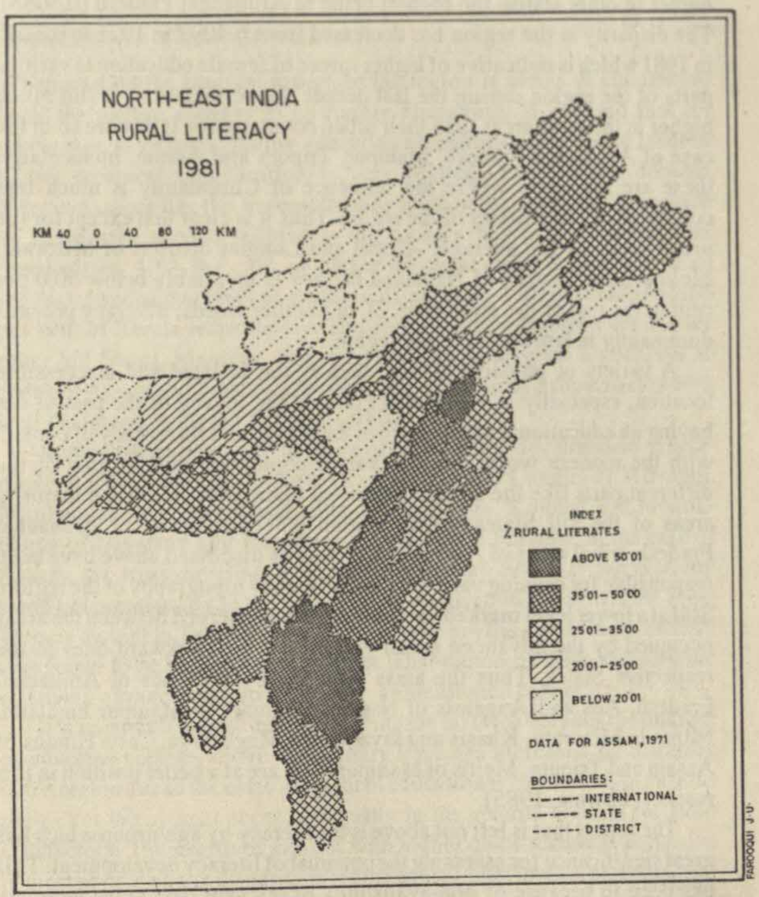
Apart from the differential growth rate in the states of the region there exists at present remarkable variation in the literacy rate among them (Fig.2). The state of Mizoram records the highest percentage of literacy (59.90 per cent) ranking second in the country after Kerala (70.40 per cent). It is distantly followed by Nagaland (42.60 per cent), Tripura (42.10 per cent), Manipur (41.30 per cent) and Meghalaya (34.10 per cent) in respective order. Arunachal has the lowest literacy rate (20.80 per cent) among these states. Assam had 28.20 per cent literacy in 1971 and if its literacy rate is taken to continue as that between 1961 and 1971, its literacy rate is expected to be about 35.0 per cent in 1981. It is thus evident that the states of Assam, Meghalaya and Arunachal Pradesh which comprise 72.0 per cent area and 82.0 per cent population of the region are yet to



Fig·2

reach the national average of 32.62 per cent literacy of 1981, what to speak of any higher literacy rate.

The position of literacy in terms of rural and urban areas is again wide-ranging. Thus the State of Nagaland, Manipur and Tripura which seem to have higher literacy rate have, in fact very low level of rural literacy (Fig.3). It is almost half the state's urban counterparts and not much higher than that of national rural average. It indicates the general prevalence of illiteracy in these states. Worse is the situation in the States of Assam and Meghalaya and the worst in Arunachal Pradesh where most



Fig·3

areas are yet near the border of primitiveness. Only exception here is Mizoram which has both high rural and urban literacy. When the situation is looked from the perspective of sex differential in literacy between the urban and rural areas, it appears to be far more precarious. Except for Mizoram the rural female literacy of the region is significantly low and it is as low as 9.60 per cent in Arunachal Pradesh. The male-female disparity in literacy (Sopher, 1974) is also found to be generally high in the region.

It is relatively lower in Meghalaya (0.1515) and Mizoram (0.1740), but higher in other states, the highest being in Arunachal Pradesh (0.5088). The disparity in the region has decreased from 0.4097 in 1971 to 0.3200 in 1981 which is indicative of higher spread of female education in various parts of the region during the last decade. Nevertheless, it is still much higher in the rural areas than their urban counterparts. It is more so in the case of Arunachal Pradesh, Manipur, Tripura and Assam. Incidentally, these are the areas where the influence of Christianity is much less compared to other States of the region. Thus it is clear that except for the urban areas on the average, Aizawl and Lunglei districts of Mizoram, Mokokchung District of Nagaland literacy is invariably below 50.0 per cent in the rest of the areas (Fig. 2), or in other words, illiteracy prevails dominantly in large parts of the region.

A variety of physical factors, such as the isolated and inaccessible location, especially in Arunachal Pradesh, the legacy of the past of not having an educational atmosphere in the region and its recency of contact with the modern world, and the varied population composition of the different parts like the Hindu-dominated plain areas, Christian majority areas of the hill States, tribal religion practising areas of Arunachal Pradesh, tribal areas of Assam and Tripura as discussed above have been responsible for causing variations in the literacy topography of the region. Still at a lower level marked variations may be observed between the areas occupied by the advanced social groups and the backward ones in the respective States. Thus the areas occupied by the Aids of Arunachal Pradesh, Aos and Angamis of Nagaland, Hmars in Manipur highland, Mizos in Mizoram, Khasis and Jayantias of Meghalaya, Caste Hindus of Assam and Tripura, Meitis of Manipur Plain are at a better position in this respect (Sharma, 1985).

The aspect that is left out above is the literacy by age-group which has great significance for assessing the potential of literacy development. This has been so because of non-availability of relevant data at the moment. What is, however, apparent from the earlier censuses is that literacy in any particular age-group except the age group of 5-9, is higher than the percentage of literacy in any of the preceding age-group. It indicates a persistent trend of increase in the level of literacy over a length of time. This is mainly because of literacy elevation programmes implemented during different plan periods after independence. Further it is found that literacy is spreading high among the young generation, especially, in Manipur, Nagaland and Arunachal Pradesh, a reflection of which may be observed in the growing literacy levels in these states during 1971-81.

Spatial Pattern of Educational Level

When studied the literacy pattern of the region in terms of educational level the picture appears to be further dismaying. It is found that the percentage of persons having education of graduate and above level or higher technical qualification is very limited. Interestingly enough, Mizoram which has the highest literacy level in the region and the pride of having the second highest in the country has only 2.78 per cent matriculates, 1.63 per cent of higher secondary and 0.73 per cent of graduates and above level as against 6.41 per cent, 1.40 per cent and 1.38 per cent of Kerala respectively. The corresponding figures even for the other hill States, Manipur, Nagaland and Meghalaya are higher, not to speak of Assam and Tripura. Obviously the position of Arunachal Pradesh is at the lowest ladder in all these levels.

At the district level, the position of educational development is relatively at a high level in the districts of Aizawl and Lunglei of Mizoram, Manipur Central, East Khasi Hills of Meghalaya, Kohima and Mokokchung of Nagaland and East Siang of Arunachal Pradesh. In the case of Assam, the areas covering the districts of Jorhat, Sibsagar and Kamrup stand out prominently in the level of higher education, while it is the West Tripura district in Tripura State. In fact, these are the areas where literacy was found to be higher because of the inhabitation of these areas by the relatively advanced groups of people, as mentioned earlier.

It is important to note here that during the last two decades the number of educated persons above the primary level has increased significantly in the region due to the establishment of educational institutions in various parts. Yet the present scene, especially in the remote areas is far from satisfactory. The dearth of persons with higher qualification is pervasive in most parts. The sex disparity in higher educational level is more glaring. The case in point is Mizoram which paradoxically enough is shown to have only few females with technical qualification either with certificate or diploma or degree level. Thus the picture of literate persons having higher educational level is quite discouraging in the region, although it has certain enclaves of promise and potentials. As already mentioned, the examples of these are provided by the areas covering the long stretch of the Brahmaputra Valley and the Silchar Plain of Assam, Manipur Valley, Agartala Plain, Kohima and Mokokchung areas of Nagaland, Aizawl and Lunglei of Mizoram, Shillong and its environs of Meghalaya and Pasighat area of Arunachal Pradesh.

It is worth noting in this context that literacy without any educational level could be considered to be a liability to the society. Because in their case, on the one hand, the solid foundation of the past gets shaken and on the other, they are not equipped enough to meet the challenge of the new. They are likely to be more susceptible to frustration and bearers of floating discontent. Contrastingly, persons who have education at least above the primary level are likely to be better equipped for meeting the various needs of an emerging society (Roy Burman, 1970). Viewed from this perspective, the forces of stability and progress seem to have a weak foundation so far throughout the whole region.

The Total Scene

The foregoing analysis of literacy and educational levels gives a complex character of the total social scene. At the sub-regional level, Mizoram is characterised by higher literacy and lower sex disparity in literacy. The rural-urban differential in literacy is not very high, but in terms of educational level its position is quite depressing. Nagaland shows a character of relatively high literacy in the region added by a rapid literacy growth rate during the last few decades. But the sex disparity in literacy as well as rural-urban differential in literacy is quite high and its position in the level of education is also at the lower ladder. Meghalaya is marked by lower literacy rate and very high rural-urban differential in literacy. Contrastingly, the sex disparity in literacy here is the lowest and the position in respect of educational level is better than those of the above two states. The result is one peculiar to itself mainly because of a development confined to Shillong and its environs only. Arunachal Pradesh which is known for its rugged hilly terrain and socio-economic backwardness has a social scene with the lowest scores in all the educational variables. Manipur is characterised by relatively high literacy, low rural-urban differential in literacy and relatively high proportion of people in different educational levels. The sex disparity in literacy here is, however, high. Tripura departs significantly in social character from all the above States. Relatively high literacy, but high sex disparity in literacy and high rural-urban differential in literacy point to a pattern of educational development having prominent areal and social groupwise differences. With a relatively high level of literacy and the highest proportion of persons in different educational levels Assam stands out prominently in the level of educational development among all the States of the region.

Conclusions

The expectation of significant spatial variation in the social topology of

North East India is clearly borne out by the literacy and educational characteristics dealt with in this study. The educational profile of the region is not only uneven but complex in character, a result of interplay of a host of physical and cultural attributes as discussed above. The complexity has got accentuated because of the diversity prevalent among the various ethnic and religious groups with different degrees of social transformation. Viewed in totality, the region stands out to be a social deep as yet, although not without the presence of certain social ridges here and there. But the social highs which are apparent in the hill areas seem to be alien in character and they have contributed so far only marginally towards strengthening the wide educational base in such areas.

It should be noted that in spite all the constraints, significant changes in the educational development have taken place in the region since Independence. The various schemes including the universalisation of educational programmes are doing yeomen service in enhancing the level of literacy and education in the region at present. It is worth noting in this context that the mere establishment of higher institutions like universities without priority-based considerations will be of limited service towards strengthening the educational base of the people of the region. A network of institutions distributed in acceessible distant right from the primary level through the intermediate stage to the higher level and proper coordination among them, besides implementation of the various education development schemes, will only ameliorate the situation presently prevalent in the region.

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TWENTY NINE

Protective Discrimination and Regional Disparities in Educational Development: The Case of Indian Tribes

Kusum K. Premi, Manju Narula and Ro. Pakhuongte

Since independence India has been following a policy of protective discrimination in favour of certain disadvantaged groups and areas. The Constitution of the country not only guarantees equality of opportunity to all but also makes special provisions for certain groups of deprived, specially scheduled tribes and scheduled castes. The various five year plans of the country have made separate allocations for SC/ST. Major share of the allocations has gone to education which has been considered as fundamental to overall development of backward groups.

A number of special incentives and facilities have been given to SC/ST in education. In the National Policy on Education 1986, education of backward groups has received special allocation and a whole chapter in the policy is devoted to 'Education for Equality'. The groups covered are women, SC, ST, backward areas, minorities, disabled and the adults. With regard to the SC and ST the goal of the policy is 'equalisation' with the non-scheduled population at all stages and levels of education, in all areas and in all the four dimensions — rural male, rural female, urban male and urban female.

Over the years there has been considerable progress with regard to education of SC/ST. However, disparities continue among the SC/ST and non-scheduled groups. Also gaps within group inequalities have been evidenced both across space as well as among different groups of SC/ST.

In this paper taking the case of scheduled tribes in Part I an attempt is made to review the policy of protective discrimination in education, and study the impact of the policy of protective discrimination in education on educational development of the scheduled tribes. The paper highlights certain emerging disparities across states and among different tribal groups in selected states. The concluding section draws out implications of the emerging trends on planning and management of education for the deprived groups.

Policy of Positive Discrimination and Special Programmes for the Deprived

The deprived have been an area of special concern since independence. The Constitution is unequivocal in securing equality of opportunity to all the citizens irrespective of race, sex, caste and place of birth (Art. 14, 15 and 16). Similarly, Art. 29 guarantees educational cultural rights to all the citizens. Art. 45 is more specific regarding obligation of the State. *It directs* the State "to strive to provide within a period of 10 years from the commencement of the Constitution, free and compulsory education upto the age of the 14 years". But what is more important from the viewpoint of deprived sections is Art. 46, which directs the State "to promote with special care the educational and economic interest of the weaker sections of the society and in particular of Scheduled Castes and Scheduled Tribes."

Besides the Constitution, the main bases of educational policy in India are the several Commissions and Committees appointed from time to time to suggest reforms in the educational system so as to meet adequately the new demands of the country. The three important Commissions on Education were University Education Commission (1949); Secondary Education Commission (1952); and, Kothari Education Commission (1964-66) which was the most comprehensive and dealt with the entire educational system.

All these Commissions endorsed the Constitutional Commitments of equality of opportunity in education to all groups of the society. The Kothari Commission in fact, devotes a whole chapter on "Equalisation of Education Opportunity" and gives concrete recommendation on several aspects for the promotion of education among Scheduled Tribes.

While recommending the continuance and expansion of existing programmes for promoting the education of SC and ST, the Commission recommended that:

> Greater efforts be made to promote the Education of nomadic and semi-nomadic tribes. In regard to tribal education, provision of facilities at the primary stage should be improved and Ashram

> Schools should be established in sparsely populated areas. The medium of instruction for the first two years of the school should be the tribal language and during this period the children should be given oral instruction in the regional language and by the third year, the regional language should become the medium of instruction.

Realising the difficulty of getting good teachers to work in tribal areas the Commission recommended:

> Teachers should be provided better pay scales and adequate housing facilities to take up the task of teaching in tribal areas. Teachers working in tribal areas should know the tribal language and culture. Programmes and schools should be redesigned to tribal life.

At the secondary stage the Commission suggested expansion of provision of schools, hostel facilities and scholarships.

The National Policy Resolution (1968) the first policy Resolution since independence broadly endorsed the recommendation of the Kothari Commission in regard to "Equalisation of Educational Opportunities". Art. 4 of the National Policy on Education suggests:

> More strenuous efforts be made to equalise educational opportunity. Regional imbalances in the provision of educational facilities should be corrected and good educational facilities should be provided in rural and other backward areas. To promote social cohesion and national integration the common school system as recommended by the Education Commission be adopted. Efforts should be made to improve the standard of education in general schools. All special schools like public schools should be required to admit students on the basis of merit and also to provide a prescribed proportion of free-studentship to prevent segregation of social classes. This will not, however, affect the rights of minorities under Art. 30 of the Constitution. The education of girls should receive emphasis, not only on grounds of social justice, but also because it accelerates social transformation. More intensive efforts are needed to develop education among the backward classes and especially among the tribal people. Educational facilities for the physically and mentally handicapped children should be expanded and attempts should be made to develop integrated programme enabling the handicapped children to study in regular schools.

In the National Policy on Education 1986 the aspect of "Education for Equality" has drawn the attention of the policy makers next only to "Evolution of National System of Education". A whole section of the document is devoted to this aspect.

Starting with the necessity of "attending to the specific needs of those who have been deprived equality so far", the Policy spells out strategies for reaching education to women, scheduled castes, scheduled tribes, minorities and the handicapped. The goal of the policy will be to bring different groups at par with each other.

The central focus of the scheduled castes educational development is "their equalisation with the non-SC population at all stages and levels of education, in all areas and in all the four dimensions — rural male, rural female, urban male and urban female.

In education, a number of special incentives and facilities have been provided to the two groups to motivate them to avail the educational opportunities. Some of the important programmes at school and higher educational levels are given below.

Programmes at the School Level

(i) Fee-concession and Pre-matric Stipends: Education is free to all upto elementary level in most of the states and, therefore, no fee is charged from children belonging to SC/ST. In the States, where education is not free in some of the recognised institutions, the fees charged from SC/ST is fully reimbursed by the concerned department. Pre-matric scholarships are given to boys and girls in different States at different rates. Coverage is reported to be in the range of 25 to 50 %.

(ii) Free Supply of Textbooks, Stationery and Uniform and Provision of Mid-day Meals: In States, textbooks and stationery are supplied to all SC/ST children in schools located in tribal areas. One or two sets of uniform are provided to all students staying in hostels or Ashram Schools.

(iii) Hostels and Lodging Facilities: Boarding and lodging facilities are provided to SC/ST students in hostels for SC/ST and board and lodging facilities are provided free of cost. Majority of the States have issued instructions to those institutions which provide hostel facilities to reserve some seats for SC/ST.

Programmes at Higher Education Level

(i) Post-Matric Scholarship Scheme: Under this scheme, scholarships are available for all the scheduled castes and scheduled tribes students studying in higher education. The scholarship amount ranges from Rs. 40 to Rs. 200 per month depending on the type of course, sex and hosteler/non-hosteler. Income limit is Rs. 1000 per month. This scheme now covers students of +2 stage also. The scheme is expected to cover more than 800,000 students belonging to these two groups in the year 1983-84.

(ii) National Overseas Scholarships: These are awarded to deserving scheduled caste and scheduled tribe students at post-graduate level in those subjects for which facilities do not exist in India. The income of the guardian should not exceed Rs. 1000 per month.

(iii) Book Banks and Book Grants: Book Banks have been established in a number of institutions wherein textbooks are made available to scheduled castes and tribes students for the full session. Book grants are also provided by some of the States.

(iv) Reservation of Seats in Higher Eductional Institutions: Twenty two percent seats are reserved for the scheduled castes and tribes in higher education. A study conducted by the University Grants Commission (UGC) in 1978 reported that all the Universities (except 16) had introduced reservation of seats for these groups although the variation was from 2 to 20 %. Even the 16 universities reported liberal admission requirements which enabled all the scheduled castes and tribes to get admission.

(v) Junior and Senior Research Fellowships: Out of the total junior research fellowships allocated to the universities, 10 % are reserved for scheduled caste and scheduled tribe students. Similarly 10 % senior fellowships are reserved for these groups out of a total of 100 fellowships. In addition to these 50 junior research fellowships and 20 senior research fellowships are exclusively reserved for the scheduled caste and tribe students. Twenty-five junior research fellowships have been instituted to be awarded every year to students belonging to scheduled tribes of border hill areas for post-graduate students.

(vi) Relaxation in Marks and Age: Initially a relaxation of 5 to 10% marks

was allowed to the candidates of the scheduled categories. In the early seventies, however, it was found that, inspite of this relaxation, sufficient number of candidates were not able to get admission. Admission requirements were, therefore, further relaxed. Age relaxation is also allowed to the extent of 3.5 years.

(vii) Hostels for Scheduled Castes and Tribes: To enable scheduled castes and tribes from the rural areas to take advantage of higher education, seats are reserved for them in general hostels and at places special hostel facilities have been provided to them for which separate funds are earmarked in the sub-plans and component plans.

(viii) Assistance to Colleges in Backward/Tribal Areas: In order to accelerate the pace of development of higher education among the SC/ST students, the UGC has decided to provide assistance under Rs. 5 lakh scheme with respect to colleges located in backward tribal areas. Assistance to such colleges would be made available by relaxation of normal eligibility conditions regarding strength of faculty and students enrolment.

(ix) Remedial Teaching: Since 1978, the UGC has agreed to provide funds to the colleges for remedial teaching.

(x) Special Cells: The UGC has asked the universities to constitute special cells to look after the welfare of these groups.

Impact of the Policy

As a result of the policy of positive discrimination there has been considerable improvement in the educational situation of Scheduled Tribes. The literacy rate which was 8.53% in 1961 increased to 16.35% in 1981. For the females the corresponding increase in literacy rates was from 3.16% to 8.04%.

Similarly the Gross Enrolment Rates (GER) for scheduled tribes boys was 111.1 in 1986. For the total population also the GER for boys was 111.8%. In case of girls, however, the GER for Scheduled Tribes was 68.0% as against 99.2% for total girls. The retention rates at primary level for the ST increased marginally from 20.3% in the case of 1967-68 cohort to 23.3% in the case of 1973-74 cohorts. While for all communities the increase was from 33.5% to 38.6%. There was much higher increase in enrolment coefficient at the higher education level. This increased from 15.9% in 1968-69 to 24.0% in 1978-79. Employment also shows that the representation of ST in Class I categories of jobs has increased from 0.27% in 1965 to 1.41% in 1983. In Class II category of jobs their representation has increased from 0.34% to 1.46% over the same time period.

The educational situation of ST improved not only in relation to their earlier position, but enrolment gap between ST and total population also bridged over a period of time.

In primary education the enrolment rates of ST males were marginally lower as compared to total males (111.1 for ST as against 111.8 for the total). Similarly, in higher education as seen from 'Coefficient of equality' the enrolment gap narrowed between the ST and others.

However in terms of literacy rates (the stock variable) the gap continues to be wide between ST and others. There are statewise disparities as well as district disparities in literacy rates within the same states.

The gap between scheduled tribes and others increases as one goes higher up the level; indicating higher dropout rates amongst them.

In higher education the gap still continues to be wide. Within higher education the representation of ST in professional and technical courses is minimal.

More important than the gap between ST and other communities which has been quite adequately researched at least in quantitative terms are the disparities amongst different groups of scheduled tribes. Thus there are great rural and urban disparities amongst the tribes as also male and female disparities. Tribes of central India are much different from tribes of eastern zone. Even within eastern zone some tribes in some states have a better educational attainment as compared to others. Within the same state two tribes utilise the facilities differentially.

Regional Disparities in Educational Attainment of Scheduled Tribes: A Conceptual Framework

The regional disparities in education are part of the marked disparities in socio-economic conditions across the region which help certain regions to acquire relatively greater importance than others and enable them to play a decisive role in the subsequent process of human capital formation. Regional disparities are common to all the countries but these are more pronounced in case of developing countries because of the distorted process of development during the colonial rule. An important feature of regional disparities in India is high degree of temporal stability which is largely ascribed to the historical processes on the one hand and current development strategies on the other.

Spatial disparities in India are found at variety of scales. For example there are disparities among different states, among different districts within the same state or among different blocks of the same district. More important than these are rural-urban disparities which are part of much broader imbalance in rural economic and social development. The major basis of differentiation here is radically different type of occupational structure in the two areas.

In the case of ST also there are great disparities across space, i.e. inter-regional, inter-state, inter-district, rural-urban and inter-tribal. In this paper the spatial disparities among the ST have been analysed at four different levels:

- First, we have tried to compare the educational attainment of tribes of central zone with the tribes of eastern zone.
- Secondly, we attempt to analyse the inter-state differentials in the educational attainments of tribes of both Central and Eastern Zones. While doing so, we also highlight on rural-urban and male-female differentials.
- At the third level, we attempt to study the performance of different tribes within the same state. For this we have selected two numerically preponderant tribes from each of the states.
- Lastly, we plan to look at the performance of the same tribe in different states. For this we have selected two tribes of Central Tribal belt, i.e. Gonds and Bhils.

The educational differentials will be analysed first with regard to crude literacy rate which includes literates without educational levels and secondly in respect of effective literacy rate which can be taken as a crude indicator of quality because it reflects on retention in the system until completion of a particular level.

Disparities in Educational Attainments of Tribes at Zonal Level: Eastern Zone and the Central Zone

The two major concentration of tribes are in Eastern Zone comprising the states of Meghalaya, Nagaland, Tripura, Manipur, Arunachal Pradesh, Mizoram and Assam and the Central Zone which include the states of Madhya Pradesh, Orissa, Bihar, Maharashtra, Gujarat, Rajasthan and

Andhra Pradesh. While the percentage of tribes in the total population of a state is high in most of the states of Eastern Zone, in terms of absolute population figures for the tribes the states of Central Zone account for about 80% of the total tribal population of the country. In fact the state of Madhya Pradesh alone accounted for about one-fourth of the total tribal population of the country. In the States of Eastern Zone the tribal population is only about 7% of the total tribal population of the country.

The state-wise literacy rates for the tribes of Central Zone and Eastern Zone are presented in Table I. It can be seen that while the literacy rates for the tribes of Eastern Zone range from about 20% to 60% in case of rural males and 60% to 85% in the case of urban males the corresponding range for Central Zone is from about 10% to 30% for rural males and 30% to 60% in the case of urban males.

Table 1 Literacy rates for Scheduled Tribes
Central Zone and North-Eastern Zone 1981

States	Rural		Urban	
	Male	Female	Male	Female
Central Zone				
1. Andhra Pradesh	10.67	2.80	31.48	14.14
2. Bihar	24.63	6.48	48.30	27.78
3. Gujarat	29.53	11.00	41.16	20.20
4. Madhya Pradesh	16.91	3.19	38.64	15.18
5. Maharashtra	29.18	9.34	58.90	35.12
6. Orissa	22.63	4.34	36.05	13.69
7. Rajasthan	17.88	.93	41.93	8.70
North-Eastern Zone				
1. Arunachal Pradesh	19.76	6.88	60.63	33.18
2. Manipur	46.72	28.05	65.24	47.93
3. Meghalaya	29.77	24.40	65.61	59.68
4. Mizoram	60.17	50.21	77.11	71.01
5. Nagaland	44.60	30.16	71.37	61.50
6. Tripura	32.75	11.53	84.43	72.22

Male-female differentials are also much sharper in the case of Central Zone as compared to North-Eastern Zone. In the case of the former, they range from less than 1 per cent in the case of Rajasthan rural females to 35% in case of urban females of Maharashtra. In the case of eastern zone, the lowest female literacy is 7% for rural Arunachal Pradesh and highest is 72% for urban Tripura.

One can easily infer that tribes of eastern zone except the state of Arunachal Pradesh are educationally much ahead of tribes of central zone. One must also bear in mind that major concentration of tribes is in the central belt. The planning implications are therefore, clear that a blanket policy formula for eastern and central zone may not yield the desired result. Secondly, for the overall educational development of tribes more attention will need to be paid to central zone both because of greater backwardness as well as larger numbers involved. Here also there is a need for differential inputs in favour of females.

Inter-tribal Differentials in Educational Attainment

While inter-state and inter-district differentials across states have drawn the attention of researches in the field of educational development, inter-tribal differentials have received only marginal consideration although of recent some of the studies have referred to the importance of analysing the same specially from view point of effective policy intervention.

It is well known that there are significant differences amongst different tribes living in different states. Within the state also there are differences. The tribes living in plains are found to be more developed as compared to those living in the interiors. Mobile tribes are much more disadvantaged than the settled tribes. The differential occupational patterns also account for some of the differentials in development of the tribes. In certain cases, the social movements or exogenous factors also affect the development of a tribe. In the context of education, the tribes who came in early contact with the Christian missionaries are much more advanced as compared to the other tribes.

To analyse the differentials in the educational attainments of tribes, we have taken for analysis two numerically preponderant tribes from the selected states of North-East and Central zone. The educational differentials have been analysed first in regard to crude literacy rates (including literacy without educational levels) which will give a quantitative picture. The qualitative situation has been analysed with regard to "effective literacy rates" which have been obtained by adding up 'primary' and above (see Table II).

There is a wide difference in the levels of educational development among the tribes of both North-East States as well as Central States. Differences are more significant in rural areas as compared to urban areas. For example, while the rural literacy rate for both the males and females

Table II Educational attainment of selected tribes: 1981

State	Tribe	Literacy rates				Effective literacy rates			
		Rural		Urban		Rural		Urban	
		M	F	M	F	M	F	M	F
Andhra Pradesh	Koya	11.65	3.54	42.77	12.49	5.71	1.15	35.00	12.23
	Sugalis	9.20	1.51	17.16	2.74	4.47	0.36	17.00	2.59
Bihar	Oraon	29.03	15.76	56.53	41.97	19.70	11.97	41.90	30.06
	Santhal	22.53	3.85	48.47	13.55	15.19	1.83	35.51	8.68
Madhya Pradesh	Bhil Bhilala	8.91	1.17	36.09	11.53	3.60	0.39	26.31	6.63
	Gond	20.24	3.59	52.07	16.97	16.65	1.10	35.05	8.21
Gujarat	Bhil	29.10	7.90	40.74	15.78	12.88	2.29	23.36	7.13
	Dubla Talaria	25.69	8.85	33.40	11.43	7.89	2.04	15.11	2.62
Rajasthan	Bhil Gararia	12.39	0.73	26.50	3.96	5.63	0.22	17.11	1.84
	Mina	25.50	1.16	66.03	11.57	13.77	0.37	51.88	5.84
Orissa	Gond	31.74	6.19	52.82	17.93	12.15	1.85	34.36	7.83
	Khonal	21.51	3.44	46.68	11.53	6.10	0.89	30.76	5.90
Maharashtra	Bhil, Bhil-Gararia	20.00	4.28	42.47	14.16	9.58	1.47	32.49	9.15
	Gond	36.09	11.86	68.67	35.86	19.36	4.82	53.64	24.17

of the Mizo tribes was 69.41%, the corresponding figures for the Nissi tribe of Arunachal Pradesh were only 11.42% and 2.78% respectively.

In case of urban areas, in general, literacy rates are found to be fairly high for all the tribal groups. As such, inter-tribe variation in the levels of educational development among the different states is found to be comparatively smaller. For instance, the urban literacy rates of Tripura for both males and females were 85.09% and 72.76% respectively. On the other end, the corresponding figures for the Chakmas were 50% and 36% respectively. The Janghuls, the Mizos and the AOs are at the top level with literacy rate running close to each other.

North-East India, being highly rural in character, the educational scenario presents a striking rural-urban disparity for all the tribal groups. Sex disparity is also found to be equally striking with the exception of few groups such as the Khasis, the Mizos, the AOs and the Semas.

It will also be worthwhile to note that the proportion of 'literate without educational level' is fairly high for the Mizos in particular as well as among the AOs and Semas of Nagaland. This phenomenon may be largely attributed to the culture of developing the ability to read Bible among the Christian tribal without much concern for formal education.

The magnitude of inter-tribe variation in the levels of educational development within a state is also large. Once again the manifestation is found to be much more striking in the case of rural areas rather than the urban areas. For example, in case of the two numerically dominant tribes of Mizoram — the Mizos and the Chakmas — the Mizo literacy rate for both the rural males and females were 69.41% and 43.72% respectively as against 21.28% and 7.43% for the Chakmas. The corresponding figures for urban areas were 77.50% and 71.93% for the Mizo as against 50% and 36% for the Chakmas.

Inter-tribe variation within a state is found to be minimum between the Khasis and the Garos of Meghalaya.

Similar inter-tribal differences are to be observed in the case of tribes of Central Tribal belt. Here also differences are more marked in the case of rural areas. Thus while literacy rates for the Gonds of Maharashtra and Orissa for the rural areas are more than 30% these are less than 10% for the Bhils of Madhya Pradesh and Sugalis of Andhra Pradesh. For rural females of Rajasthan the literacy rates are the least — less than one per cent in the case of Bhil. The highest literacy rates are for the Oraons of Bihar.

In the urban areas the literacy situation of most of the tribes is fairly good — the literacy rates of urban areas are more than 30% except in the case of Sugalis of Andhra Pradesh and Bhils of Rajasthan. Here the Minas of Rajasthan and Gonds of Maharashtra excel all others in terms of literacy performance.

Within the same State, also the performance of two tribes differs widely. For example, while the literacy rates for rural males of Madhya Pradesh is about 20%, for the rural-male Bhils of Madhya Pradesh it is less than 10%. Similarly, in the case of Rajasthan, the performance of Bhils and Minas differs significantly. In the urban areas, the inter-tribal differences are much sharper.

While Crude Literacy Rates take into consideration both formal and non-formal education and do not necessarily reflect on the provision and utilisation of educational facilities, 'Effective Literacy Rates,' are based on the performance of school system. In the case of effective literacy rates completion of primary level is taken as the minimum. This indicator can also be taken to be a proxy indicator for quality because it ensures retention of the pupil in the system until they complete at least a particular level of education.

Effective literacy rates for each of the selected tribes are given in Table II. As can be observed these are substantially lower than the crude literacy rates. In case of Gujarat the performance of both Bhil and Dubla goes down substantially in regard to Gonds and Khonds of Orissa and Gonds of Maharashtra and Madhya Pradesh. In the case of rural females, the effective literacy rates are less than 5% except for Oroans of Bihar. In fact, in the case of 5 of the 14 numerically preponderant tribes these are less than 1%. In the case of even urban females the effective literacy rates are less than 10% for most of the selected tribes — the exceptions are Gonds of Maharashtra, Oraons of Bihar and Koyas of Andhra Pradesh. In the case of eastern tribes the differentials in crude literacy rates and effective literacy rates are at time sharper.

In rural areas, on the basis of crude literacy rates it was observed that the Mizos, the AOs, the Sema and the Tangkhuls stood prominent while the Adi Gallaong, the Nissi, the Riagngs and the Chakmas occupy the bottom level.

However, if we observe these tribes on the basis of effective literacy, some tribes tend to lose their prominence. This is largely due to the fact that when a particular tribe has a large proportion of its population under non-formal system, it tends to inflate the crude literacy rate dispropotionately irrespective of the quality. This being the case, among the tribes of North-East also, we observe that while the Tangkhuls and the AOs continue to retain their prominence in both the aspects, the Mizos lost their prominance considerably with respect to the quality. In the meantime, the Nissi, the Riaog, etc. continue to occupy the bottom level.

So far as urban areas are concerned, the Tripuris and the Riangs occupy the top level both in terms of quality and quantity. Here, it may be noted that in case of the Riangs, by virtue of their insignificant proportion of urban population, the percentage figures tend to be inflated thereby over-shadowing the insignificant absolute figure. Hence, they appear to be projected prominently. Similar is the case with the Tripuris whose performance in urban areas appear to be quite impressive inspite of their poor performance in rural areas.

The Mizos of urban areas once again subside from prominence to lower level in terms of effective literacy. On the other hand, the Nissi, the Thadous and the Chakmas of urban areas are at the bottom level both in forms of crude literacy and effective literacy.

From the above analysis of inter-tribal differences across states and within the same state for two numerically preponderant tribes, it becomes abundantly clear that inter-tribal differences among Tribes in different states are as significant as among Tribes in different states. The differences are not only between two tribes that the performance of the same tribe also varies in terms of rural-urban residence or again male-female distribution. These, however, follow general educational scenario of the state. The differentials underscore the necessity of understanding each of the tribes in its socio-cultural context and follow a local specific policy of intervention.

Inter-state Disparities in Educational Attainment of the Same Tribe

Of recent, while intercaste and intertribal differences have been focussed by some of the researches in the area of disparities, very little attention is paid to analyse the educational performance of the same tribe spread over the boundaries of different states. Based on the evidence that tribal educational attainment in a particular state is related to overall educational attainment of other communities, it is hypothesised that the education performance of the same tribe will be different in different states and that it will be related to the overall educational development of the state. To study the interstate differential in the performance of the same tribe we have selected two of the major tribes of Central Zone, i.e. Bhil and Gond whose population is dispersed over more than two states.

While Bhil tribe is found in considerable numbers in the states of Gujarat, Madhya Pradesh, Maharashtra and Rajasthan, Gonds are more concentrated in the states of Madhya Pradesh, Orissa and Maharashtra though they are also found in the states of Andhra Pradesh and Bihar. The educational attainments of Bhils and Gonds are presented for each of the states separately in Table III.

The performance of Bhil differs greatly in the four states where they are distributed. The literacy rates for the Bhils are highest in the states of Maharashtra and Gujarat both in rural and urban areas. These are the lowest in Madhya Pradesh in the case of urban areas while Rajasthan ranks lowest in the case of females — both rural and urban.

The literacy differentials among the Bhils reflect the general differentials in the educational attainment of these states. While Gujarat and Maharashtra are educationally advanced states, Madhya Pradesh and Rajasthan are among the educationally backward states. In case of female education, Rajasthan ranks the lowest. Also in case of Bhils Rajasthan is the lowest.

Effective literacy rates follow more or less the same pattern as crude literacy rates. However, these are abysmally low in all cases and particular so in the case of rural areas and females which together account for more than 90 percent of the total population.

A comparison of literacy performance of Gonds across the three states (Andhra Pradesh and Bihar are excluded) also reveal differential performance. Here also as expected Gonds of Madhya Pradesh are at the bottom with regard to crude literacy. However, in terms of effective literacy, Orissa gets the lowest position. On the basis of the analysis of inter-state differences in the performance of the same tribe, it can safely be generalised that performance of a tribe in a particular state is related to the overall educational performance of the state though in the case of tribes literacy rates are lower compared to other communities. From this it can be inferred that development of tribes is possible only if there is overall development of states.

Concluding Observations

Based on the tribe-wise data for different states from the 1981 Census, recently made available, an effort is made in this paper to analyse some of the inter-tribe disparities across space and within different sub-groups of tribes in the same state. The differentials are analysed in terms of two indicators 'literacy rates' and 'effective literacy rates'. Effective literacy rates have been defined to include all the educational levels above primary level. This is also taken as a crude indicator of quality because it takes

Table III Educational attainments of Bhils and Gonds across States: 1981

Tribe	State	Literacy rates				Effective literacy rates			
		Rural		Urban		Rural		Urban	
		M	F	M	F	M	F	M	F
Bhils	Gujarat	29.10	7.90	40.74	15.78	12.88	2.29	23.36	7.13
	Madhya Pradesh	8.91	1.17	36.09	11.53	3.60	.39	26.31	6.63
	Maharashtra	20.00	4.28	42.27	14.16	9.58	1.47	32.49	9.15
	Rajasthan	12.39	.73	26.50	3.96	5.63	.22	17.11	1.84
Gonds	Madhya Pradesh	20.24	3.59	52.07	16.97	16.65	1.10	35.05	8.21
	Maharashtra	36.09	11.86	68.67	35.86	19.36	4.82	53.64	24.17
	Orissa	31.74	6.19	52.82	17.93	12.15	1.85	34.16	7.83

Only those States are selected where these tribes are numerically preponderant.

into consideration the retention rates upto the completion of particular level.

Analysis of the differentials has been attempted at four levels. At the first level the tribes of central zone and eastern zone are compared. At the second level of analysis, interstate differences are analysed. This is followed by an analysis of inter tribe differences within each of the state. Lastly, performance of the same tribe has been compared across states.

The result indicates great differentials across space and among different tribe groups in the same state. The performance of the same tribe differs widely in different states. In general, females in rural areas were found to be at a very low level. Male tribes in urban areas, in most of the cases, have very high literacy rates and compare favourably with non-tribes. Within the same state the performance of tribes differs significantly in terms of rural-urban residence and male-female distribution. More interestingly members of one single tribe performed differently in different states despite their physical proximity.

This paper has only presented the empirical reality. Certain hypotheses have been thrown in the process. These need to be tested with micro-level data, and an indepth analysis of historical and geographical factors on the one hand and socio-cultural and political context on the other hand. This was obviously not possible when one studies the tribes at regional or even at the state level. Based on an analysis of empirical data, certain planning implications are obvious.

First of all it may not be useful to adopt a blanket approach to the problems of tribes, since they differ from each other in their overall level of development and in different aspects of educational development. It may be more useful to classify tribes on the basis of level of educational development. After this one will have to take a policy decision whether to give better inputs to more developed tribes or to less developed tribes. The arguments are equally strong on both sides — while more inputs to better off can yield quick results it may increase inter-tribal disparities. On the other hand, more inputs to the most backward may be more equitable but may not give us quick dividends. Our earlier policy as we have seen in this paper is uniform and treats all tribes at the same level. The result is increase in disparities which have been focussed by several studies. While in a democratic policy it may not be possible for the Central Government to follow differential policy towards different regions and different tribes, this may be possible at the state level. However, this is to be based on micro-level analysis of the situation of each area and tribe. This policy may also necessitate the declassification of certain tribes who have attained higher education level.

Secondly, from this analysis it is clear that even at the lowest level, i.e. 'crude literacy' or 'primary education' the situation of tribes in certain aspects specially in rural areas and among females is abysmally low. As one up the higher level their attainments become insignificant. It is, therefore, necessary to first concentrate at the primary level and middle level. However, at present the meaningful incentives are only at the higher level. The NPE 1986, however, lays more emphasis on programmes at elementary level.

Thirdly, it has been observed from the analysis that in the case of certain tribes, non-formal education component is very high. There is need to weave formal educational component in the non-formal. This will enable a number of tribes to move to higher levels in the formal system. Equivalence between formal and nonformal is suggested by the policy. It is to be seen how far it can be achieved.

THIRTY

Educational Status : A Study of Inter-District and Inter-State Variations in North-East India

Sumitra Chowdhury and Tarujyoti Buragohain

1. Introduction

Almost all countries of the world face the problem of regional inequalities. Just as regional inequalities exist in the fields of urbanisation, industrialisation, distribution of income, etc. they also exist in the field of education. However, the level of economic development of a region is directly related to the level of its educational development. Education removes socio-economic barriers. Hence, in order to reduce socio-economic inequalities it is necessary first to remove/reduce educational inequalities. Therefore, it may be considered that the first task is to determine the extent of the existing educational inequalities and identify the lagging region so that corrective measures could be initiated to rectify the imbalances.

This paper attempts to measure inter-state and inter-district inequalities in educational system of North-Eastern India which is believed to have been a neglected area and thus needs special attention for research.

The North-Eastern region of India consists of seven states, viz. Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland and Tripura. These seven states are at present divided into fifty one districts. District-wise classification of the states is shown in Table 1.

Total area of the region is 255,083 sq km which constitutes 7.75% of the total area of the country. The population in the region according to 1981 census is 26,607,199 which is 3.88% of the total population of the country as a whole. Statewise proportion of area to total area of the region, proportion of population to the total population of the region, density of

Table 1 Classification of states

Districts	Arunachal Pradesh	Assam	Manipur	Meghlaya	Mizoram	Nagaland	Tripura
	1	2	3	4	5	6	7
1.	West Kameng	Cachar	Manipur, North	East Khasi Hills	Aizawl	Kohima	West Tripura
2.	East Kameng	Darrang	Manipur, West	West Khasi Hills	Lunglei	Phek	North Tripura
3.	Lower Subansiri	Dibrugarh	Manipur, South	Jaintia Hills	Chhimtuipui	Wokha	South Tripura
4.	Upper Subansiri	Goalpara	Tengnoupal	East Garo Hills		Zunheboto	
5.	West Siang	Kamrup	Manipur, Central	West Garo Hills		Mokokchung	
6.	East Siang	Karbi Anglong	Manipur, East			Thensang	
7.	Dibang Valley	Lakhimpur				Mon	
8.	Lohit	Nowgong					
9.	Tirap	Sibsagar					
10.		N.C. Hills					
11.		Kokrajhar					
12.		Karimganj					
13.		Sonitpur					
14.		Dhubri					
15.		Jorhat					
16.		Barpeta					
17.		Nalbari					
18.		Golaghat					

population per sq km, literacy rate, rate of enrolment per school, rate of enrolment per institution of higher education, teacher-pupil ratio, per-capita budgeted expenditure on education are reported in Table 2 for having an overview of the inter-state inequalities in the region.

2. Methodology

Broadly speaking, regional inequalities are measured in objective sense and/or in normative sense. Measuring inequality in objective sense involves identifying some indicators and employing some statistical measures of relative variations to them. On the other hand, in normative sense, we try to measure inequality in terms of some normative notion of social welfare which involves ethical evaluation. However, an useable measure of inequality combines factual features with normative notions. Thus, while measuring regional inequalities we conclude that higher degree of inequality corresponds to lower level of social welfare.

Regional imbalances in education are consequences of the concentration of educational activities in some region. Concentration of educational activities refers to the extent to which they are not distributed equally among all the districts of a state. For the purpose of measuring concentration of educational activities and to measure the inequalities we have identified the following indicators: (i) number of population, (ii) number of literates, (iii) number of institutions, (iv) number of students enrolled, (v) number of teachers, and (vi) budgeted expenditure on education. Choice of these factors has been largely guided by the availability of data. Concentration of these indicators have been examined by means of the following formula which was developed first by Ginni and was modified by Hirschman:

$$\mathrm{CR} = \sqrt{(X_i/X)^2} \times 100$$

where CR = Concentration ratio
X_i = Value of the variable in *i* th district
X = Value of the variable for the region as a whole

Value of CR varies between 100 and $100/\sqrt{n}$ where n is the total number of districts among which the variate values are distributed. Besides inter-district comparison has been made on the basis of density of population, literacy rate, population, served by an institution, area served by an institution, enrolment per institution, percentage of enrolment to total population, teacher-student ratios and budgeted expenditure on education per student.

Table 2 Comparative picture of North-Eastern States

State	Percentage share of each state to total area of North East	Percentage share of population to total population of North-East	Density of population per sq km	Rate of literacy	Enrolment per school	Enrolment per institute of higher education	Teachher student ratio	Per capita budgeted expenditure on education
Arunachal Pradesh	32.83	2.37	8	20.79	12.51	364	32	48.0
Assam	30.75	74.78	254	34.9*	133.60	267	34	26.8
Manipur	8.75	5.34	64	41.35	106.66	218	19	57.2
Meghalaya	8.79	5.02	60	34.08	61.33	240	24	47.7
Mizoram	8.26	1.86	23	59.88	102.56	153	19	97.1
Nagaland	6.49	2.91	47	42.57	156.09	94	13	100.3
Tripura	4.11	7.72	196	42.12	209.31	548	3	54.9

* literacy rate of 1971 as there was no census in 1981.

N.B. Ratios and rates have been calculated on the basis of data published in "Basic Statistics of North-Eastern Region"-North-Eastern Council, Shillong.

3. Data Source

The required data have been collected from "Basic Statistics of North Eastern Region" published by North Eastern Council, and from Educational Statistics-Districtwise of various States published by Planning, Monitoring and Statistical Division, Ministry of Education and Social Welfare, Dept. of Education, Government of India. Districtwise data for all the states are available for a single year 1976-77. However, district level data are not available for Arunachal Pradesh.

4. Empirical Results

The calculated concentration ratios are reported in Table 3. If we look at the table columnwise, it gives us a comparative picture of various indicators within a state. Looked at row-wise gives us inter-state variations for each of the indicators.

It may be observed that in Assam the value of CR for number of students enrolled is the highest. It is 56.39 which is higher than its minimum value. As against this, the value of CR for number of institution is the lowest. It implies that although the number of institutions are widely distributed over all the districts of the state, the number of students enrolled are not uniformly distributed. The value of the CR for other four indicators are not very high and they are also close to their minimum value which implies that number of population, number of literates, number of teachers and expenditure on education are distributed widely over all the districts. In fact, the calculated proportions of number of students enrolled in each district to the total number of students enrolled in the state shows that 77% of the total number of students enrolled are located in Goalpara, Kamrup and Sibsagar districts taken together.

The values of CR in Manipur for all the six indicators are quite high and also quite different from their minimum values implying that inter-district inequality is high in Manipur. But the values of CR are as high as 76.08 and 73.71 in case of number of literates and expenditure on education respectively. This is also evident from the calculated proportions which show that 75% of the total literates and 72% of the total expenditure on education in the state are in the district Manipur Central.

In Meghalaya, the value of CR are high for literates and expenditure. These are 75.12 and 73.87 respectively. This is supported by the fact that 67% of the total number of literates and 70% of the total expenditure on education are accounted by Khasi Hills districts.

In Mizoram, concentration ratio for expenditure on education is the highest which is 75.42. It implies that expenditure on education in Mizoram is not evenly distributed. The calculated proportions of expenditure on education in each district to the total expenditure on education in the state shows that 73% of the total expenditure goes to the Aizawl district alone. However, it is interesting that in Mizoram, value of concentration ratio for literates is lowest among all six indicators and it is also close to its minimum value. Thus, literates are widely distributed over all the districts of Mizoram. But the values of CR for all other indicators are high and are quite different from their minimum values. This becomes evident from the calculated proportion of each district to the state as a whole which show that all these indicators are concentrated mostly in Aizawl district.

The calculated CR for Nagaland shows that CR is maximum for number of literates and it is also supported by the fact that 45% of the total number of literates are concentrated in Mokukchung district.

In Tripura, value of CR for expenditure on education is highest among all indicators. However, this is not very different from its minimum value. Thus, in Tripura, the distribution of expenditure on education is concentrated but not very unevenly distributed.

When we examine the value of CR for the North-Eastern Region as a whole, we see that none of the values of CR is very high. But among all six indicators CR for number of students enrolled is highest and it is more than double of its minimum value. This implies that concentration of number of students enrolled is not very high but it is also not evenly distributed.

This statewise analysis also brings out an interesting fact that except in case of Nagaland, the maximum concentration of the indicators tally with the districts in which capital of each of the state is located. This may be supported by the view that educational activities like another activity have a tendency to concentrate in the capital city.

Table 3 row wise shows that values of CR for number of population is highest for Mizoram followed by Manipur, Meghalaya, Tripura, Nagaland and Assam.

Similar ranking of States has also been done depending on the value of CR of each indicator. These rankings of the states are indicated by numbers, 1 to 6, and are reported in Table 4.

From Table 4, it may be observed that compared to all other states Assam experiences least concentration of the indicators, as against this Mizoram experiences maximum concentration of indicators. However,

Table 3 Concentration ratios

Indicators		Assam	Manipur	Meghalaya	Mizoram	Nagaland	Tripura	North Eastern Region
1. Population	CR	36.11	69.31	64.02	72.47	41.33	60.57	28.60
	MV	31.62	40.82	57.73	57.73	37.79	57.73	17.67
2. Literates	CR	39.07	76.08	75.12	62.13	61.68	61.70	31.13
	MV	31.62	40.82	57.73	57.73	37.79	57.73	17.67
3. Students enrolled	CR	56.39	66.40	67.04	74.19	44.48	62.17	35.83
	MV	31.62	40.82	57.73	57.73	37.79	57.73	17.67
4. Institutions	CR	35.58	51.29	63.83	72.46	42.47	58.78	25.69
	MV	37.62	40.82	57.73	57.73	37.79	57.73	17.67
5. Teachers	CR	36.61	61.35	63.99	74.49	43.27	63.28	25.73
	MV	31.62	40.82	57.73	57.73	37.79	57.73	17.67
6. Expenditure on education	CR	38.87	73.71	73.87	75.42	44.93	65.60	26.67
	MV	31.62	40.82	57.73	57.73	37.79	57.73	17.67

from the table the overall ranking of the states may be done on the basis of occurrence of a particular number in the row corresponding to a state and we may conclude that concentration of all the indicators are maximum in Mizoram followed by Meghalaya, Manipur, Tripura, Nagaland and Assam.

Table 4 Ranking of states

State	Population	Literates	Students enrolled	Institutions	Teachers	Expenditure on education
Assam	6	6	5	6	6	6
Manipur	2	1	3	4	4	3
Meghalaya	3	2	2	2	2	2
Mizoram	1	3	1	1	1	1
Nagaland	5	5	6	5	5	5
Tripura	4	4	4	3	3	4

We have also examined the density of population, literacy rate, enrolment ratios and budgeted expenditure per institution and per student enrolled.

The density of population is highest in the district Manipur Central which is as high as 393 per sq km. As against this, density of population is lowest in Manipur west. Interestingly both the districts are in Manipur and this may be the reason for which we have obtained the uneven distribution of concentration ratio in Manipur.

Literacy rate is highest in Aizawl district of Mizoram which is 62.7% and lowest for Karbi-Anglong district of Assam which is 23.6%.

Teacher-pupil ratio is highest in East Khasi Hills district of Meghalaya and lowest in Karbi-Anglong district of Assam. The calculated ratios are 50 and 18 respectively.

The overall enrolment ratio is highest for Sibsagar district in Assam and lowest in Tengnoupal district of Manipur.

In view of the belief that expenditure is 'an important factor for improving quality as well as rate of literacy of a country, the expenditure on education differs from country to country, region to region, state to state even institution to institution. Expenditure on education mainly depends on per-capita income and propensity to spend (because it does not give immediate benefit) if it is understood that the underlying motive of an individual or family in seeking education is to improve economic

Table 5 Expenditure variations per institution and per enrolment in North East India (in Rs.)

States	Primary		Middle school		High/H.secondary		Others	
	Per. inst.	Per enrl.	Per inst.	Per enrl.	Per inst.	Per enrl.	Per inst.	Per enrl.
Assam	7,313.1697	84.5736	19,601.1283	115.6824	69,045.646	180.085	8,960.00	213.47
Meghalaya	3,401.185	61.3975	15,675.628	176.0653	78,552.845	560.469	18,798.76	1,638.52
Mizoram	33,937.1745	222.92	50,936.2054	483.975	78,377.296	634.586	16,673.66	432.93
Manipur	10,460.674	156.445	24,284.828	197.26	93,914.3234	941.115	60,906.85	1,014.66
Nagaland	16,290.003	183.80	44,871.837	308.61	1,15,193.577	413.371	—	—
Tripura	14,467.6789	111.3817	58,269.971	231.44	2,25,603.99	1,524.5	—	—

prospects through better job and higher wages in future. A comparative picture of expenditure per institution and per enrolment is shown in Table 5.

It may be observed that expenditure per primary school is highest in Mizoram among all the states and lowest in Meghalaya. This corresponds to the fact that rate of literacy is highest in Mizoram and lowest in Meghalaya among all the six states. Hence we may conclude that rate of literacy is directly related to the level of expenditure per primary school. In fact, expenditure per primary school in Mizoram is ten times more than that of Meghalaya. Rankwise Nagaland, Tripura, Manipur and Assam stand second, third, fourth and fifth respectively in this respect. We obtain the same type of result when we examine expenditure per student enrolled except for the fact that Manipur and Tripura interchange their ranks.

In case of expenditure in middle school, the expenditure allocated per middle school is highest in Tripura. Meghalaya ranks last in this respect. In fact, expenditure in Tripura is 3.72 times more than that in Meghalaya. However, when we examine expenditure per enrolment in middle school, Mizoram ranks first and Assam last.

So far as expenditure in high and higher secondary schools is concerned Tripura recorded the highest expenditure per institution and Assam recorded the lowest. These ranks remain same when we examine expenditure per enrolment in high/higher secondary school. But expenditure per institution in Tripura is three times more than in Assam whereas it is eight times more than Assam in case of expenditure per enrolment.

We have also examined expenditure in institutions of higher education which includes general, professional and vocational institutes. Our findings in this respect are that Manipur recorded highest expenditure per institution and per enrolment and Assam lags behind all other states.

This also corresponds to our findings regarding enrolment ratio in institutes of higher education which shows that the enrolment ratio per institute of higher education is maximum in Manipur. Thus, this again conforms to the hypothesis that expenditure is directly related to the level of education and educational development.

Conclusion

Results of this study show that there are wide variations in educational status at the inter-district and inter-state level in North-Eastern Region given the indicators considered for the study, our findings identify the districts and states which are relatively less developed than others and need attention of the policy makers for corrective measures. However, when we consider all the indicators simultaneously we cannot identify any district or state as developed or underdeveloped in all respects.

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THIRTY ONE

Determinants of Regional Disparities in Literacy in the North-East: Planning Strategies for Removal of Disparities

A.C. Mohapatra

Literacy is at the same time, both a cause and result of development. While literacy is one of the most significant parameters of the development process in a society, a higher literacy level may result out of interplay of other structural features in a developing society. At the initial phase, investments in the social sphere, level of existing literacy, level of income and nature of income distribution in the society, nature of asset holding, size of families and direction of social development policies may result in a higher literacy level but, then, the literacy level becomes a significant causal factor in accentuating not only the degree and nature of socio-economic development but also becomes the prime-mover of improvements in quality of life in the society. Moreover, in a democratic society, a higher literacy level is the only guarantee for the strength of the system and its effective functioning.

This crucial role of literacy was very clearly appreciated by leadership during the freedom struggle and therefore, the goal of universal primary education in the country was set to be achieved by 1960. However, now we realise that unless something drastic is attempted we will feature as the country with the largest illiterate population of the world of the next century, since, while literacy has increased, absolute illiteracy has also increased. The spread of literacy has also been quite uneven over various regions of the country, since, literacy tends to cumulate in regions with already higher levels of literacy, and to a great extent depends on income distribution than on higher level of per capita incomes. Even some of the developed states of the country enjoy rather lower literacy levels than other states with lower levels of per capita incomes but higher level of literacy (Kerala and Mizoram).

In the present paper, an attempt has been made to study the levels of literacy, the disparities in the levels of literacy and the causal factors governing the disparities in literacy in North-Eastern Region of the country consisting of seven states of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, and Tripura. Needless to emphasise that the region is one of the most backward regions of the country with low levels of per capita income, low level of industrial and agricultural development, a high level of social backwardness indicated by high concentration of Schedule Tribe population and low level of technical and skill development. Moreover, the poor state of infrastructure development has been a major hurdle to rapid economic development.

The study is largely based on available information from census reports of 1971 and 1981. However, since no census enumeration took place in Assam in 1981, it remains a major limiting factor of the study, since Assam contains the single largest share of population of the region. The study is largely at the district level. There are 33 districts for which the inter-district disparities have been estimated for the remaining six states of the region. To study the level of intra-district disparity in level of literacy, Meghalaya has been chosen in which the disparities of 31 Community Development Blocks have been studied within the 5 districts of the state as a case study.

At the level of inter-district disparities five types of (crude) literacy variables have been studied. They are:

1. Percentage of literates to total population.
2. Percentage of male literates to male population.
3. Percentage of female literates to female population.
4. Percentage of rural literates to total rural population.
5. Percentage of urban literates to total urban population.

The study has been organised in four sections. (1) The first section deals with level of district-wise literacy in the region in 1971 and 1981 census years. For this purpose, three variables have been considered in district-wise total literacy.

In the second section the change in the literacy level has been studied at the district and the state levels over 1971 and 1981 decade. However, since some districts have been divided, suitable adjustment of data has been done to make them comparable over the decade.

In the third section, the disparities in district-wise literacy levels have been studied for 1971 as well as 1981 census years. Moreover, the intra-district disparities as a special case has been studied for the state of Meghalaya. For simplicity, coefficient of variation (CV) has been used as the measure of disparity of the inter and intra-district levels of literacy.

Finally, the causal explanations of inter-district variations in literacy in the region for 1981 has been attempted through linear regression models in which the literacy levels of various types (3) have been used as the dependent factors and seven explanatory variables have been used as independent factors. These variables are as the following:

X_1 : Average size of household
X_2 : Total work participation rate (%)
X_3 : Percentage of female workers to total female population
X_4 : Percentage of workers in non-agri. sectors to total workers
X_5 : Percentage of urban population to total population
X_6 : Female literates/male literates
X_7 : Dependency ratio

The initial justification of independent factors in explaining variations in the five literacy variables can be stated as follows:

1. *Smaller size of household (average) leads to higher literacy.* This may be due the fact that a small household can afford a relatively larger investment in education and other welfare measures than a larger household and therefore, smaller the size of the household (as a substitute for family) higher shall be the literacy.

2. *Higher work participation rate (total workers to total population) leads to higher literacy.* The argument can be that higher work participation might result in higher earnings for the household. This might lead to greater flexibility in households spending on education or make circumstances such that higher literacy might emerge.

3. *Female work participation rate.* A higher female work participation rate is assumed to lead to higher literacy since higher female work participation may lead to higher income for the family and better invesment in children.

4. *Workers in non-agricultural sector.* This is assumed as a positive factor, since higher level of workers in non-agricultural sectors is associated with higher literacy level.

5. *Higher level of urbanisation (X_5) leads to higher literacy.* Urbanisation reflects change in activity pattern in the society from agriculture to non-agricultural sectors. A higher level of urbanisation therefore, is indicative of a higher level of income potential as well as education being

ι more organised activity and thus, a higher level of literacy.

6. *Ratio of female literates to male literates.* This seems to be a key /ariable since a more favourable ratio can act as a catalyst in boosting the ɔverall level of literacy in the society.

7. *Dependency ratio (non-workers per main workers).* It is expected that a higher dependency ratio is detrimental to higher literacy since higher dependency might lead to higher burden on the wage earners of the family and lower incentive for educating the young in the family.

Level of Districtwise Literacy in the North-East (1971 and 1981)

As enumerated in 1971 population census, the level of literacy was generally low in North-East except the states of Mizoram (53.80 per cent), Manipur (32.92 per cent) and Tripura (30.98 per cent). Since, Assam constitutes the bulk of the population of the region, it could be safely concluded that the region as a whole lagged behind the national literacy level. Arunachal Pradesh (then, NEFA) had extremely low level of literacy, 11.29 per cent only. Table 2 presents the district-wise percentages of literacy for total, male and female literacy in the region for 1971 and 1981 and their decadal growth rates (except Assam). Since many districts have been broken up to make new districts, a comparative picture has been provided by combining the district units, suitably. Out of the 18 district units for 1971, all the five districts of Arunachal Pradesh had an overall literacy level below 20 per cent. Only Mizoram (then, a single district) had a literacy over 50 per cent. However, the level of female literacy was even lower compared to male literacy. For example, in Arunachal Pradesh, the male literacy was 17.82 per cent compared to 3.71 per cent of female literacy. For Manipur, the figures are 46.04 and 19.53 per cent, respectively; in Meghalaya, 34.12 and 24.56 per cent, etc. Only in Mizoram, the female literacy seems to be of a high level, i.e. 46.70 per cent. However, over the decade, there seems to be a reasonable progress in the growth of literacy in the region. In 1981, except Arunachal Pradesh and Meghalaya (only marginally) the rest of the states seem to have crossed the national average literacy level of 36 per cent. Mizoram had the second largest literacy level (after Kerala) among states (with 59.88 per cent), Manipur with 41.35, Nagaland 42.57 and Tripura 42.12 per cent literacy have shown a good progress. The most remarkable aspect of this change has been the growth of female literacy in the region. The growth of overall literacy was the highest in Arunachal Pradesh (84.15 per cent), and the lowest in Mizoram (11.30 per cent), and the latter having already

Table 1 Per cent growth of literates 1971-81.

Districts/ States	Percentage of literates						Growth rate		
	1971			1981					
	T	M	F	T	M	F	T	M	F
	1	2	3	4	5	6	7	8	9
Kameng	9.61	15.08	2.80	15.64	22.03	8.47	62.75	46.09	202.50
Subansiri	6.89	11.58	1.85	17.80	26.02	8.74	158.35	124.70	372.43
Siang	12.97	20.59	4.29	24.59	33.22	14.29	89.59	61.34	233.10
Lohit	17.39	25.14	7.37	28.36	36.63	17.54	62.51	45.70	137.99
Tirap	11.22	18.06	3.48	19.33	27.68	9.68	72.28	52.27	178.16
Arunachal Pradesh	*11.29*	*17.82*	*3.71*	*20.79*	*28.94*	*11.32*	*84.15*	*62.40*	*205.12*
Manipur North	22.65	32.89	11.88	31.03	41.08	20.20	37.00	24.90	70.03
Manipur West	21.87	32.29	11.62	36.38	46.44	26.06	66.35	43.82	124.27
Manipur South	34.68	44.84	24.28	44.85	52.99	36.09	29.33	18.18	48.68
Manipur Central	34.64	48.84	20.21	42.76	55.86	29.51	23.44	14.37	46.02
Manipur East	34.10	45.71	22.11	41.99	52.09	30.99	23.14	13.96	40.16
Manipur	*32.91*	*46.04*	*19.53*	*41.35*	*553.29*	*29.06*	*25.65*	*15.75*	*48.80*
K. & J. Hills	33.46	37.11	29.57	37.81	40.29	35.20	13.00	8.57	19.04
Garo Hills	23.57	29.64	17.17	27.96	33.94	21.71	18.63	14.51	26.44

Meghalaya	*29.47*	*34.12*	*24.56*	*34.08*	*37.89*	*30.08*	*15.64*	*11.05*	*22.48*
Mizoram	*53.80*	*65.50*	*46.70*	*59.88*	*64.46*	*54.91*	*11.30*	*-1.59*	*17.58*
Kohima	30.99	40.80	18.79	46.53	55.35	35.61	50.15	35.66	89.52
Others*	27.40	35.02	18.58	39.77	46.12	32.76	55.59	44.67	76.32
Nagaland	*27.40*	*35.02*	*18.65*	*42.57*	*50.06*	*33.89*	*55.36*	*42.95*	*81.72*
West Tripura	32.61	41.42	23.23	46.21	56.15	35.80	41.70	35.56	54.11
North Tripura	32.17	41.32	22.38	41.96	50.78	32.53	30.43	22.89	45.35
South Tripura	26.69	36.62	16.17	34.83	44.59	24.50	30.50	21.76	51.52
Tripura	*30.98*	*40.20*	*21.19*	*42.12*	*51.70*	*32.00*	*35.96*	*28.61*	*50.01*
Goalpara	21.98	30.27	13.03						
Kamrup	29.77	39.19	18.17						
Darrang	22.76	30.26	14.30						
Nowgong	28.92	36.97	19.96						
Sibsagar	36.62	44.32	27.92				No enumeration		
Lakhimpur	29.94	38.42	20.19						
Cachar	30.57	40.42	19.90						
Nilgiri Hills	19.17	26.93	10.29						
N.C. Hills	27.22	35.46	17.49						
Assam	*28.15*	*37.19*	*19.27*						
All India	*29.45*	*39.45*	*18.70*	*36.23*	*46.89*	*24.82*			

* Other include Mokokchung, Tuensang (as per 1971 census)

Table 2 District-wise literacy in North-East, 1981

S. No.	State/ District	Literacy rates				
		Overall	Male	Female	Rural	Urban
1	2	3	4	5	6	7
1.	West Kameng	20.97	28.30	12.43	19.17	48.73
2.	East Kameng	7.73	12.31	2.88	7.73	—
3.	Lower Subansiri	19.52	27.94	10.01	14.61	53.79
4.	Upper Subansiri	12.90	20.28	5.29	12.90	—
5.	West Siang	22.50	30.81	13.39	19.03	50.95
6.	East Siang	26.04	34.92	15.57	21.76	54.72
7.	Dibang Valley	26.28	34.74	13.49	26.28	—
8.	Lohit	28.26	36.63	17.54	25.58	55.47
9.	Tirap	19.33	27.68	9.68	19.33	—
	Arunachal Pradesh	20.79	78.44	11.32	18.51	53.22

10. Manipur North	31.03	41.08	20.20	30.64	36.94
11. Manipur West	36.38	46.44	26.06	35.47	48.80
12. Manipur South	44.85	52.99	36.09	41.81	58.13
13. Tengnoupal	34.23	42.71	25.16	33.19	40.86
14. Manipur Central	43.28	56.68	29.77	38.35	52.55
15. Manipur East	41.99	52.09	30.99	40.21	65.58
B. Manipur	41.35	53.29	29.06	37.37	52.44
16. Jaintia Hills	24.51	24.63	24.38	20.17	66.01
17. E. Khasi Hills	43.73	46.96	40.30	31.95	65.25
18. W. Khasi Hills	31.97	34.08	29.75	31.47	52.35
19. E. Garo Hills	33.51	39.01	27.66	33.08	47.41
20. W. Garo Hills	25.91	32.04	19.55	21.69	61.27
C. Meghalaya	34.08	37.89	30.08	27.45	64.12
21. Aizawl	65.09	68.91	61.00	61.16	74.89
22. Lunglei	56.89	62.55	50.46	52.62	74.10
23. Chhimptuipui	37.07	44.55	28.73	34.08	62.37
D. Mizoram	59.88	64.46	54.91	55.24	74.06

1	2	3	4	5	6	7
24.	Kohima	48.94	57.04	38.69	43.67	63.28
25.	Phek	37.99	49.09	25.27	37.99	—
26.	Wokha	45.60	55.49	34.82	42.21	66.03
27.	Zunheboto	45.59	52.81	38.10	42.63	66.19
28.	Mokokchung	61.78	65.95	57.18	60.45	68.10
29.	Tuensang	30.49	36.89	23.32	27.37	66.27
30.	Mon	19.89	26.45	12.35	16.49	55.41
E.	Nagaland	42.87	50.06	33.89	38.59	64.23
31.	West Tripura	46.57	56.15	33.89	38.59	64.23
32	North Tripura	41.96	50.78	32.83	39.57	74.21
33.	South Tripura	34.83	44.59	24.50	32.15	69.11
F.	Tripura	42.12	51.70	32.00	38.23	73.66

a high literacy level and the former with a low base of literacy. Meghalaya had a growth of 15.64, Manipur 25.65, Tripura 35.96, and Nagaland 55.36 per cent respectively, over the decade. It may be noted that these rates are net of the population growth in the respective states. In Arunachal Pradesh while male literacy grew by 62.40 per cent female literacy increased by 205.12 per cent. Female literacy growth in Nagaland was 81.72 per cent, in Tripura, 50.01 per cent and in Manipur, 48.80 per cent. In all the states, the female literacy growth has been higher than the male literacy growth. In Mizoram, the male literacy growth suffered marginal decline (–1.59 per cent). Even at the district level the same pattern can be discerned, though there remains substantive differences both in the levels and growth rates of literacy in the district-wise literacy situation in the region.

Disparity in Level of Literacy in North-East: Inter-District Variations (1981)

The disparity in the level of literacy has been studied at inter-district and inter-state levels in the region for 1981 for five literacy variables, i.e., total, male, female, rural and urban literacy. The coefficient of variations in percentage have been presented in Table 3. The overall disparity in literacy (inter-state) is estimated to be 29.05 per cent in 1981. The disparity in male literacy is substantially lower for the region (23.92 per cent) compared to the level of female literacy (39.85 percent). The variations in urban literacy (13.51 per cent) is lower than the variations in rural literacy. But, the inter-district disparity (state-wise) of overall literacy also varies from state to state; whereas the disparity is lowest in Tripura (11.74 per cent), it is as high as 30 per cent in Arunachal Pradesh and Nagaland. Inter-district disparities in male literacy are relatively lower, though it varies from as low as 9.35 per cent in Tripura to as high as 25.95 per cent in Arunachal Pradesh. The variations in disparities in female literacy is greater, from as low as 13.81 per cent in Tripura to as high as 40 per cent in Arunachal Pradesh. Disparities in rural literacy are higher in Nagaland and Arunachal Pradesh. Due to some districts having no urban population in Arunachal Pradesh and one in Nagaland, the disparities are higher in these states.

Overall, it seems that (i) wherever the level of literacy is higher, the inter-district disparity is lower, thus a higher level leading to lower disparities and (ii) secondly, the disparities are lower in relatively plain areas than the hill areas, since accessibility might result in unequal spread of literacy as seen from the fact that Manipur and Tripura have relatively

Table 3 Inter-district disparity of literacy in North-East (1981)

S.No.	State/Region	Total literacy	Male literacy	Female literacy	Rural literacy	Urban literacy
1.	Arunachal Pradesh	30.65	25.95	39.99	30.44	89.67
2.	Manipur	13.11	1.64	17.84	10.68	19.30
3.	Meghalaya	21.38	21.01	24.37	19.38	12.58
4.	Mizoram	22.19	17.58	28.75	22.93	8.13
5.	Nagaland	30.23	25.10	40.33	33.10	41.43
6.	Tripura	11.74	9.35	13.81	10.96	5.89
7.	NER	29.05	23.92	29.85	31.41	13.51

low inter-district disparities in overall literacy levels.

Intra-district Disparity in Literacy in Meghalaya (1971 and 1981)

To appreciate the situation of intra-district disparities in the level of literacy, a specific study of Meghalaya has been attempted in terms of block-wise literacy levels (total, male and female) for both 1971 and 1981 census years. Table 4 provides the percentages of block-wise literacy of Meghalaya for 31 community development blocks. Table 5 provides the coefficient of variations of intra-district (inter-block) variations in literacy for 1971 and 1981. A study of Table 5 indicates that the inter-district disparity in 1971 in overall literacy was 25.23 per cent which has marginally declined to 21.86 per cent in 1981. The disparity in female literacy in 1971 was 29.65 per cent compared to 23.40 per cent of male literacy and both have come down to 25.20 and 21.39 per cent respectively.

The disparity in the inter-district variations of overall literacy in 1971, was the lowest in West Khasi Hills (8.08 per cent) compared to the highest in West Garo Hills (34.49 per cent). The disparity in male literacy was relatively lower and female literacy higher, the minimum being 18.84 per cent in West Khasi Hills and maximum of 41.83 per cent in West Garo Hills districts. In 1981, the intra-district disparities have increased in some districts like Jaintia Hills, West Khasi Hills and East Garo Hills districts, whereas it has marginally declined in other two districts. Moreover, the former three districts are relatively backward and have a generally lower level of literacy. But, the change in disparity levels in 1981 has some peculiarities, for example, while in West Khasi Hills the intra-district disparity has increased marginally, disparity in female literacy shows a significant decline (from 18.84 per cent to 5.07 per cent) and an increase from 3.11 per cent to 12.64 per cent can be observed in case of male literacy. Similar is the situation in Jaintia Hills district also. But in East Garo Hills district, where the disparity in overall literacy has increased, it has also increased both in male and female literacy levels. This might indicate to varying processes and efforts at the micro-level in augmenting literacy levels leading to different types of results.

Determinants of Disparities in Literacy in North-East (1981)

In the causal model used (multiple linear regressions) to evaluate the five dependent literacy variables ($Y_1,...,Y_5$) for 1981, the 33 districts being the observations, as stated earlier, there are 7 explanatory variables ($X_1,...,X_7$)

Table 4 Block-wise literacy in Meghalaya, 1971 and 1981

District/CD Block	1971			1981		
	Total	Males	Females	Total	Males	Females
1	2	3	4	5	6	7
Meghalaya	29.49	34.12	24.56	33.35	36.97	29.55
Jaintia Hills Dist.	*19.91*	*21.71*	*18.10*	*23.77*	*23.68*	*23.87*
Jhadlaskein CD Block	16.58	16.95	16.17	18.84	16.58	21.04
Amalarem CD Block	21.77	24.05	19.74	26.32	28.24	24.41
Laskein CD Block	15.31	17.73	12.92	18.87	17.25	20.96
Khleihriat CD Block	16.87	17.97	15.78	18.84	19.69	17.91
E. Khasi Hills Dist.	*39.33*	*43.42*	*34.86*	*43.10*	*45.97*	*40.06*
Nongpoh CD Block	23.76	28.12	18.83	28.49	33.67	22.89
Bhoi Area CD Block	23.83	28.50	18.50	28.50	29.94	26.92
Mawryngkeng CD Block	19.15	19.63	18.68	29.63	27.68	31.57
Mylliem CD Block	36.62	40.55	32.34	40.27	43.61	36.78
Pynursla CD Block	21.25	23.47	19.08	34.42	35.99	32.90
Mawsynram CD Block	30.47	35.42	25.34	34.48	37.97	31.10
Shella Bholaganj CD Block	33.76	36.69	30.55	38.27	40.32	36.13
Mewkynrew CD Block	12.77	12.95	12.59	18.95	17.12	20.71
W. Khasi Hills Dist.	*27.21*	*30.43*	*23.84*	*30.95*	*33.07*	*28.72*
Mairang CD Block	28.18	29.59	26.72	26.53	25.84	27.25

Mawkyrwat CD Block	28.73	31.81	25.52	33.32	35.91	30.64
Nongstoin CD Block	23.33	30.27	16.07	30.35	33.37	27.19
Mawshynrut CD Block	28.17	29.43	26.80	31.98	36.00	27.67
E. Garo Hills Dist.	*30.13*	*35.21*	*24.66*	*32.28*	*37.78*	*26.43*
DamboRongjang CD Block	35.54	40.75	29.83	37.55	43.43	31.38
Songsak CD Block	17.80	20.13	15.02	15.92	20.67	10.91
Samanda CD Block	17.34	23.44	12.08	19.45	23.11	14.64
Resubelpara ECD Block	36.33	42.45	29.73	38.74	44.01	33.07
W. Garo Hiills Dist.	*21.35*	*27.74*	*14.68*	*25.44*	*31.47*	*19.17*
Resubelpara WCD Block	17.44	23.92	10.70	20.01	26.57	13.42
Dadenggiri CD Block	15.54	23.28	7.62	18.24	24.17	12.16
Selsella CD Block	15.18	20.70	9.48	18.88	24.03	13.56
Rongram Cd Block	17.64	23.06	12.12	18.20	23.35	12.87
Betasing CD Block	14.64	19.72	9.38	20.98	27.29	14.52
Zikzak CD Block	15.16	19.46	10.71	23.67	30.72	16.42
Dalu CD Block	20.13	25.72	14.36	22.52	28.21	16.72
Chockpot CD Block	27.65	35.25	19.72	25.25	30.75	19.63
Dambok Aga Cd Block	35.87	46.76	24.21	31.06	36.76	24.92
Rongara CD Block	30.85	36.64	24.66	28.22	34.58	21.64

Source: Census of India, 1981, Series — 14, Meghalaya Part 1 of 1981, Provisonal Population Totals.

Table 5 Intra-district disparity in literacy in Meghalaya (1971, 1981)

S. No.	District/ State	1971			1981		
		Total	Males	Females	Total	Males	Females
1.	Jaintia Hills	13.95	14.80	14.99	15.61	22.75	11.05
2.	E. Khasi Hills	29.49	30.87	28.83	19.97	23.50	18.40
3.	W. Khasi Hills	8.08	3.11	18.84	8.33	12.64	5.07
4.	E. Garo Hills	34.35	27.93	37.76	36.95	32.48	43.70
5.	W. Garo Hills	34.49	31.17	41.83	18.30	15.04	24.20
6.	Meghalaya	25.23	23.40	29.65	21.86	21.39	25.20

for which multiple linear regression equations were run for each of the dependent variables (Y_s). The regression coefficients, the coefficients of determination (R_s) and 't ' values for each of the regression coefficients values have been summarised in Table 6. This has enabled us to identify the key factors in determining the five different categories of literacy variables in the region in 1981.

Y_1 represents the percentage of overall (crude) literacy in the region at the district level in 1981. The equation explains nearly 70 per cent (R^2=0.699) of variations in the overall literacy of the region. Thus, there are other factors than the given explanatory set of variables which could account for rest of the variations in Y_1. Moreover, within the given explanatory set, only one variable, i.e. X_6: ratio of female to male literates has a significant and positive slope; rest of the coefficients, though important are statistically insignificant. Variables X_2 and X_7 (overall work participation rate and dependency ratios), though statistically insignificant, have negative slopes. Variables like average size of household (X_1), female work participation rate per female population (X_3), percentage of workers in non-agricultural sectors (X_4) and level of urbanization (X_5), though could be important variables in explaining higher literacy, in the present context, seems to be less important for a variety of factors. These need some explanations. Due to low gender differentiation, high work participation is generally observed in tribal areas, particularly in backward areas. Except Mizoram and parts of Meghalaya and Nagaland, high work participation is associated with lower literacy and that is why there is negative association between the two. Since, in most of the tribal areas the average size of household is larger, there seems to be no clear significance of this variable on literacy level in the region.

However, the key factor in the explanatory sets seems to be the ratio of female to male literates (X_6) which is a significant factor explaining higher literacy.

The second dependent variable is the percentage of male literacy (Y_2) which has explained to the extent of 61 per cent (R^2= 0.61) by the same explanatory set of variables. However, no single variable seems to have a statistically significant slope on the dependent variable.

The third dependent variable (Y_3) is the percentage of female literacy. This variable is explained to the extent of 79 per cent (R^2= 0.789) by the same explanatory set. Again variable X_6: ratio of female to male literate is highly significant in this case, since a higher base of female literates encourages higher literacy in the female child.

The fourth dependent variable (Y_4) is the level of rural literacy which

Table 6 Multiple (linear) regression coefficients, t-values, and coefficient of determinations (R^2)

$$Y_1 = 0.153 + 0.077\,X_1 - 1.150\,X_2 + 0.335\,X_3 + 0.370\,X_4 + 0.154\,X_5 + 0.242\,X_6 - 0.048\,X_7$$
$$(1.934) \quad (-1.065) \quad (1.459) \quad (1.605) \quad (0.573) \quad (2.547) \quad (-0.299): \qquad R^2 = 0.699$$

$$Y_2 = 0.698 + 0.078\,X_1 - 1.995\,X_2 + 0.408\,X_3 + 0.487\,X_4 + 0.089\,X_5 + 0.161\,X_6 - 0.131\,X_7$$
$$(1.506) \quad (-1.428) \quad (1.370) \quad (1.634) \quad (0.257) \quad (1.310) \quad (-0.633); \qquad R^2 = 0.610$$

$$Y_3 = 0.210 + 0.044\,X_1 - 1.137\,X_2 + 0.282\,X_3 + 0.316\,X_4 + 0.122\,X_5 + 0.467\,X_6 - 0.085\,X_7$$
$$(1.165) \quad (-1.125) \quad (1.309) \quad (1.466) \quad (0.485) \quad (5.257) \quad (-0.567); \qquad R^2 = 0.789$$

$$Y_4 = 0.212 + 0.084\,X_1 - 1.304\,X_2 + 0.358\,X_3 + 0.341\,X_4 - 0.040\,X_5 + 0.228\,X_6 - 0.069\,X_7$$
$$(1.892) \quad (-1.083) \quad (1.394) \quad (1.326) \quad (-0.134) \quad (2.154) \quad (-0.389); \qquad R^2 = 0.592$$

$$Y_5 = -0.669 + 0.017\,X_1 + 0.561\,X_2 + 0.262\,X_3 - 0.054\,X_4 + 0.747\,X_5 + 0.471\,X_6 + 0.333\,X_7$$
$$(0.212) \quad (0.260) \quad (0.571) \quad (-0.116) \quad (1.395) \quad (2.483) \quad (1.039); \qquad R^2 = 0.617$$

Note: Values in the brackets are the values of t.

has been explained to the extent of 59 per cent (R^2=0.592) by the explanatory set of variables. Here, X_6, and to some extent X_1 (size of households) seem to be significant contributory factors to higher rural literacy.

The fifth dependent variable (Y_5) is the percentage of urban literacy, which has been explained to the extent of 62 percent (R^2=0.617) by the explanatory set. While X_6 is the only significant variable, X_5: level of urbanization, surprisingly is not a significant factor in determining the level of urban literacy.

Planning Strategy for Removal of Disparities in Literacy Levels in North-East Region

The following conclusions of the study have to be kept in view while planning a strategy for removal of disparities in literacy levels in North-East India.

1. During the decade of 1971 and 1981, the overall increase in literacy in the region has been largely contributed by increase in female literacy.

2. (a) The level of inter-district disparities are higher in states with lower level of literacy (like, Arunachal Pradesh); the disparities are greater in the hill areas (tribal) than in the plain areas like, Tripura and Manipur.

(b) The intra-district disparities have increased in districts (in the case study of Meghalaya) with lower levels of literacy than in districts with higher literacy.

(c) The inter-district disparities are higher for female literacy levels than in male literacy.

3. In the regression models used to explain district-wise variations in literacy, some of the key variables, have been identified. They can be grouped into two types (a) the causal factors and (b) the associated factors. The significant causal factor is, ratio of female literates to male literates X_6 only. The associative factors are size of the household X_1, level of urbanization X_5 and share of workers in non-agricultural sectors X_4.

It could also be discerned that there are other important factors which for limitations of data could not be incorporated in the model presented which might have important say in explaining disparities in literacy levels.

There are clearly four suggestions which arise as a strategy for removing disparities in literacy in the region on the basis of the present study.

1. The first is the key role of female literacy which has emerged as a distinctly important causal factor in explaining literacy of various

categories. Naturally, emphasis on female literacy is likely to lead a cumulative impact on the overall literacy in the region.

2. The average size of household is another factor which if brought down leads to higher literacy. This has implication in the area of population planning in the region.

3. Since, the disparities in literacy are higher in the hill states than the plain areas, accessibility seems to be a key factor. Therefore, greater accessibility to education seems to be an important policy implication.

4. Finally, the share of workers in non-agricultural sectors seems to be an important variable in explaining literacy. Therefore, diversification of the economy from solely primary dependence can be discerned as another important area of the strategy to remove disparities in literacy levels in the region.

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